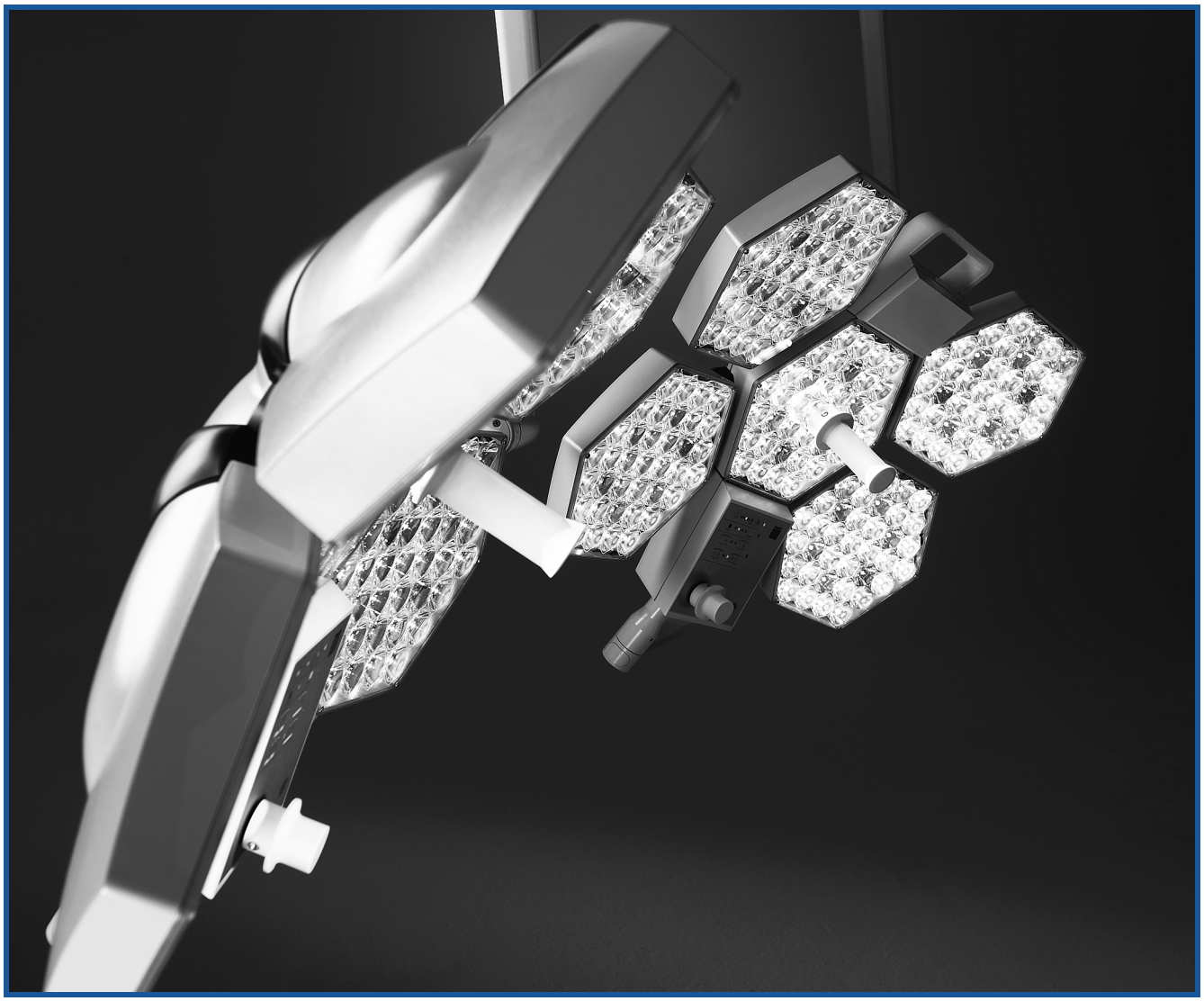
iLED Lighting System

Installation Instructions



TRUMPF

To the Service Technician

Please read through these Installation Instructions with great care and comply with the safety information and requirements for installation.

CE marking

CE

This item of equipment is a Class I medical device as defined by the European Medical Device Directive (MDD) 93/42/EEC, June 1993, Appendix IX.

Conformity

The manufacturer declares that this product conforms to the fundamental requirements according to MDD Appendix I and documents this by means of the CE marking.

What equipment forms the subject of these Installation Instructions?

iLED Lighting System:

- single luminaire version:
  with one iLED 3 or iLED 5 light head,
- surgical lighting system version:
  with a combination of 2 to 3
  iLED 3 or iLED 5 light heads,
- plus optional extra equipment.

Customer Service is at your disposal

- if you have any questions on the equipment or its installation,
- if you would like to re-order spare parts,
- for servicing or warranty claims.

How to reach us

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- Edition: 07/2007, Version 2 (Index 01)
  As on: 07.03.2007

Visit us on the Internet www.Trumpf-med.com

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- These Installation Instructions are only valid in conjunction with the iLED planning specification.

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Translations

- The German-language version of these Installation Instructions shall be binding as regards translations into foreign languages.

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- All trademarks mentioned in these Installation Instructions are the exclusive property of the respective suppliers and/or manufacturers.

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1.1 Delivery

Damage during transport

- Before installation, check the consignment for any damage that may have occurred during transport.
- In the event of any damage please contact TRUMPF.

Damage claims

- Damage claims can only be considered if TRUMPF is notified immediately.

Damage report

- Please complete a damage report as soon as possible and send it in to TRUMPF to enable damage claims to be validated.

Returns

- If you need to return an item or items, please use the original packaging if possible.

Accompanying documents

- To enable us to deal with the matter speedily, please provide the following details:
- Name and address of customer,
- Consignee,
- Primary serial number of the iLED lighting system or of the component concerned (see “Section 4.2”, page 16),
- Description of fault (form: Service Advice Form).

1.2 Identification of Components with Serial Numbers

- The components of the iLED lighting system are identified with serial numbers:
- The serial numbers define the components of a specified iLED lighting system without any risk of confusion.
- The components of an iLED Lighting System must be installed in the relevant position in accordance with the serial numbers.
- An overview of the identification of a iLED lighting system with serial numbers can be found in “Section 4”, page 16.

1.3 Equipment Required for Installation

- Vermette 512 lifting equipment or forklift with a load rating of at least 250kg.
  The lift must correspond at least to the height of the intermediate ceiling.
- Standard drill equipment or
- Core drill HILTI DD-EC 1,
- with appropriate drill,
- and drilling template (# 4019364).
- Spirit level.
- Torque wrench,
- Calibrated luxmeter,
- Multimeter,
- Standard toolkit,
- Two ladders of the necessary length.

1.4 Service Technician Qualification Requirements

Only for trained service technicians

- These Installation Instructions are written for trained service technicians.

Carrying out installation

- The iLED lighting system may only be installed by TRUMPF Technical Service or by authorized service personnel who have been trained by TRUMPF.
- When installing the equipment, you must follow the steps given in these installation instruction in the correct order.
- In the event of damage to the iLED lighting system, installation must cease.

In the event of problems

- If you encounter problems which are not covered by these Installation Instructions or not covered in sufficient detail, you should immediately contact your nearest TRUMPF Customer Service Center for the safety of operators and patients.

1.5 Installation Site Requirements

- The installation site must satisfy the requirements stated in the iLED planning specification.
- The iLED lighting system, as a surgical lighting system, must only be installed in rooms that are used for medical purposes and are set up in accordance with DIN VDE 0100 - 710 or IEC 60364-710.
- The ambient temperature during operation must be between 10°C and 40°C.
- The relative humidity must be between 30% and 75%.
- The air pressure must be between 700 and 1060 hPa.

1.6 Intended Use

Proper use

- The iLED lighting system is for illuminating an examination and surgical site on the patient in a hospital or doctor's surgery.

Operating range

- It operates at a distance of between 70 cm and 150 cm from the intervention site.

Definition: Small surgical luminaire

Single luminaire:

- One iLED 3 / iLED 5 single luminaire is classified as a small surgical luminaire under IEC 60601-2-41, and may only be used for operations where light failure will not put the patient at risk.

Surgical lighting system:

- A surgical lighting system with multiple light heads can be used without restriction.

Improper use

- The iLED lighting system is not suitable for operation in potentially explosive atmospheres.
- The iLED lighting system must not be used in environments in which combustible mixtures of anesthetics with air, oxygen or laughing gas are used.
- To avoid the possibility of the light heads overheating, never cover them whilst the lighting system is in operation.
- To avoid any risk of dazzling, never look directly at the light coming from the light heads.
- It is not permitted to place additional loads on the lamp suspension.
- Do not expose the iLED lighting system to extreme vibrations.

1.7 Warranty and Liability

TRUMPF guarantees the safety and functionality of the iLED lighting system only on condition that:

- installation, modifications and repairs are carried out by TRUMPF service technicians or other persons expressly authorized by TRUMPF,
- requirements for secure ceiling attachment have been met,
- the electrical installation of the iLED lighting system complies with the currently applicable regulations,
- only original components from TRUMPF have been used,
- only approved accessories or those that have been tested for suitability are installed,
- the iLED lighting system is being used for its intended purpose, in the proper manner,
- it is commissioned and the equipment is released for operation with a delivery note.

2.1 Secure Attachment to Ceiling

- It must be ensured during planning that all circumstances involved in the specific case have been given proper consideration, the specific approval from the competent building authorities has been obtained and all installation work has been performed in the proper manner using suitable tools.
- The structural design of the ceiling must ensure that the loads imposed by the iLED lighting system and other existing ceiling loads are absorbed and transferred safely.

Acceptance certificate of structural engineer

- The load-bearing capacity must be calculated and checked by a structural engineer and confirmed by means of proof calculations. This structural proof for the load-bearing capacity of the ceiling must be drawn up and submitted prior to installation of the iLED Lighting System.

Holes drilled incorrectly

- In the event that a hole is drilled incorrectly, coming up against a reinforcement rod for instance, the responsible structural engineer should be consulted to make sure that the load is still adequately distributed over the ceiling area.

Ceiling anchor plate

- To make sure that the load is distributed correctly, the ceiling anchor plate **must** be installed **flush** with the ceiling.

Building regulations must be observed.

- The national and regional building regulations currently applicable must be observed.

2.2 Ceiling Attachment Equipment Specifications

Reinforced concrete ceilings Class C20/25

With properly constructed Class C20/25 (or better) reinforced concrete ceilings, the following attachment equipment (not included in scope of supply) should be used (see “Section 5.1”, page 17):

- 4 through-wall anchors,
- HILTI make,
- approval no. ETA-98/0001,
- model HST M16/25,
- minimum thickness of raw ceiling 160 mm.

Observe instructions from the manufacturer of the attachment equipment

In order to secure the iLED lighting system correctly to the ceiling you must observe the instructions from the manufacturer of the attachment equipment.

Counterplate set

For **all other** ceilings we recommend the use of a counterplate set for ceiling attachment (see “Section 5.2”, page 18):

- 4 counterplates with threaded rods M16 (# 4021131),
- 4 M16 hexagon nuts – DIN 934 (# 5200031),
- 4 washers 19.00 – DIN 125 (# 5301901).

2.3 Customer's Electrical Installation

Installation by specialist external contractors

The electrical connections on the customer's premises must be implemented by a specialist company commissioned by the customer as per the iLED planning specification. The following requirements must be observed:

Work must be carried out by qualified electricians

- Planning, execution and checking of the electrical installation must be carried out at the customer's premises by competent electrical engineers and licenced electrical contractors.

National regulations must be observed

- If the applicable regulations in the country concerned require the device to be connected to the power supply by authorized specialist engineers, it is important to ensure that they are observed.

Device for disconnecting all poles from the power supply

- A device must be installed on the customer's premises which disconnects all poles of the power supply cables from the power supply network.
- The terminal blocks must be freely accessible for installation of the iLED lighting system and performance of the required electrical safety checks.
- The electrical installations of the room concerned must comply with the applicable national regulations. DIN VDE 0100 part 710 is applicable in the Federal Republic of Germany.
  The requirements of NFPA 70 and NFPA 99 are applicable in the USA.

3.1 Symbols used in these Installation Instructions

Important information is shown in these Installation Instructions using symbols and signal words.

Signal words such as DANGER, WARNING or CAUTION indicate the level of risk. This is visually emphasized by the different triangle symbols.

⚠ DANGER — **DANGER** alerts you to an immediate dangerous situation, which – unless avoided – will result in death or serious injury.

⚠ WARNING — **WARNING** alerts you to a potentially dangerous situation, which – unless avoided – may result in death or serious injury.

⚠ CAUTION — **CAUTION** alerts you to a potentially dangerous situation, which – unless avoided – may result in minor or slight injury.

NOTICE — **NOTICE** indicates a potentially dangerous situation, which – unless avoided – will lead to damage to property.

NOTE — **NOTE** gives you additional information and helpful tips for the safe and efficient use of the appliance.

The following symbols and signal words define the potential threat more precisely.

Explosion hazard warns against use of the iLED lighting system in combustible mixtures of anesthetics with air, oxygen or laughing gas.

Electric shock warns of the danger of electric shock, which may result in serious injury or even death.

Sudden release of spring arm warns of the sudden release of the spring arm if the light head is removed without firstly putting the spring arm in the highest possible limit stop position.

Falling lighting system warns of equipment suddenly falling if additional loads are placed on the lighting system.

3.2 Symbols used on the iLED Lighting System

CE conformity marking

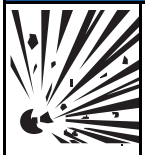
Device tested by Underwriter Laboratories Inc. for USA and Canada. UL/cUL Classification with respect to electric shock, fire, and mechanical hazards only in accordance with UL 60601-1 and CAN/CSA C22.2 No. 601.1 22TF.

3.3 Overview of the Most Important Safety Information

Please also comply with the safety information in the individual sections.

Installation site

⚠ DANGER



Gas explosion

Combustible mixtures of anesthetics with air, oxygen or laughing gas may not be used in environments in which the iLED lighting system is operated.

Danger of the lighting system falling

⚠ DANGER

Parts falling from overhead

Make sure that no-one is standing below the lighting system whilst it is being installed.

⚠ WARNING

Danger of the lighting system falling

Comply with the torques for the fixing screws specified in these Installation Instructions.

Hazards from electric shock

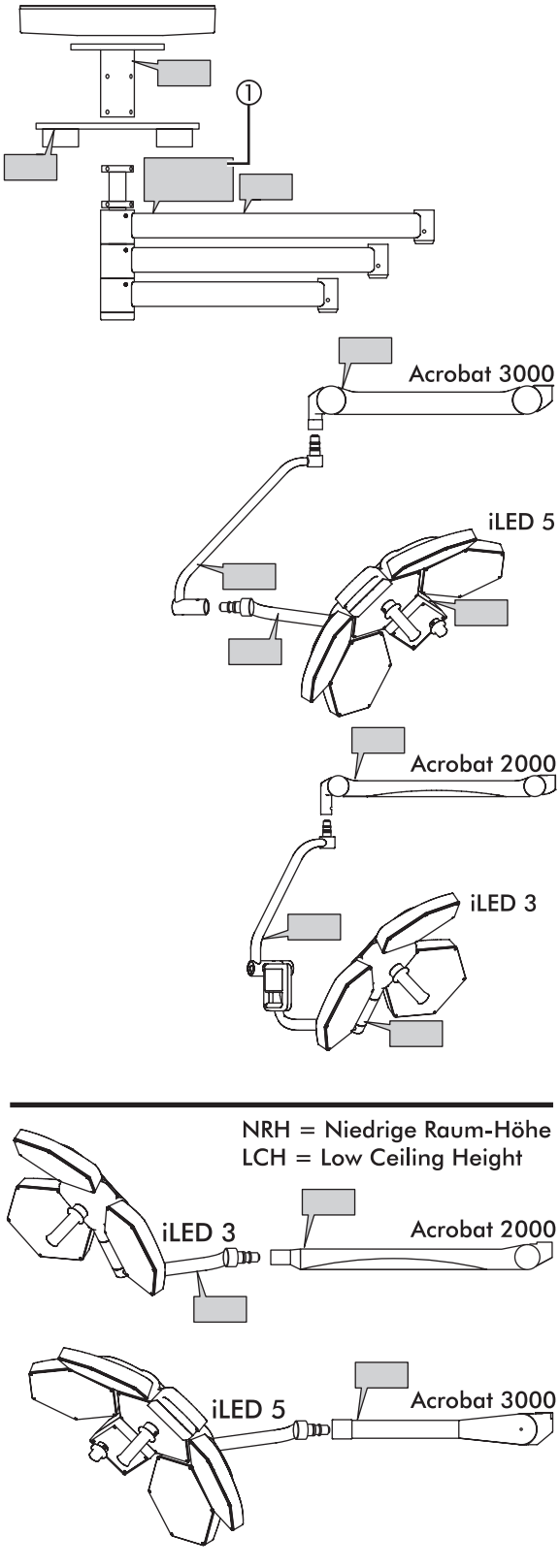
⚠ WARNING

Switch off the building power supply

During all installation work the building power supply must be de-energized and prevented from being switched back on again.

4 Identification with Serial Numbers

Figure 1



4.1 Use of Serial Numbers

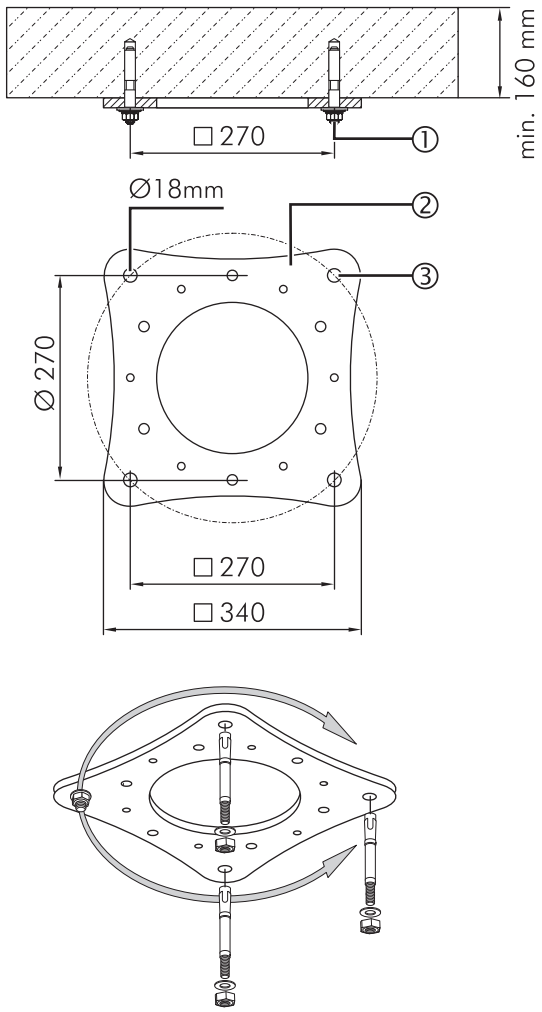
The components of the iLED lighting system are identified with serial numbers:

- The serial numbers define the components of a specified iLED lighting system without any risk of confusion.
- The components of an iLED Lighting System must be installed in the relevant position in accordance with the serial numbers.

4.2 Position of Serial Numbers

- The main serial number can be found on the packaging and also on the top of the uppermost extension arm ①.
- The positions of the serial numbers are shown in “Figure 1”, page 16.

Figure 2



5.1 Installation using Heavy Load Anchors

Check the requirements for secure ceiling attachment as specified in "Section 2.1", page 11.
The attachment equipment is described in "Section 2.2", page 11.

1. Mark the position of the ceiling anchor plate ② on the ceiling in accordance with the plan drawing using the drilling template (#4019364).

Drill holes:

2. Drill four holes ③ in accordance with the instructions from the manufacturer of the fixtures.
- Blow out the holes thoroughly.
3. Knock a heavy load anchor ① into the raw ceiling as far as the mark in accordance with the instructions from the manufacturer of the fixtures.

Installing the ceiling anchor plate:

⚠ DANGER

Falling ceiling panel

Make sure that no-one is standing below the ceiling anchor plate ② whilst it is being installed.

4. Loosely screw the ceiling anchor plate ② to the heavy load anchor ① that was installed first.
5. Align the ceiling anchor plate ② with the remaining drill holes ③.
6. Knock the three remaining heavy load anchors ① into the raw ceiling through the drill holes ③ in the ceiling anchor plate ② as far as the mark.

Tightening the heavy load anchors:

⚠ WARNING

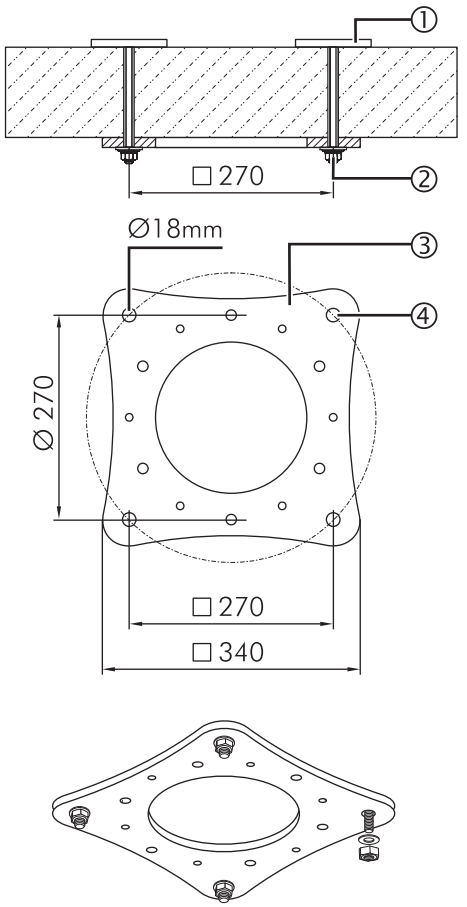
Danger of the lighting system falling

Tighten the heavy load anchors ① in accordance with the instructions from the manufacturer of the fixtures.

7. Tighten the heavy load anchors ① uniformly in accordance with the instructions from the manufacturer of the fixtures.
8. Check that the ceiling anchor plate ② is securely in place.
- The ceiling anchor plate ② must lie flush with the raw ceiling.

5 Installing the Ceiling Anchor Plate

Figure 3



5.2 Installation using Counterplates

Check the requirements for secure ceiling attachment as specified in "Section 2.1", page 11.
The fixtures are described in "Section 2.2", page 11.

1. Mark the position of the ceiling anchor plate ③ in accordance with the plan drawing using the drilling template (#4019364).

Drilling holes:

NOTE

Faulty, misaligned drill holes

Drill the holes ④ from the **underside of the raw ceiling**.

2. Drill four holes ④, with a 20mm diameter, **and always from the underside of the raw ceiling**.
3. Push four counterplates with threaded bolts ① (#4021131) through the drill holes from the top side of the raw ceiling.

Installing the ceiling anchor plate:

⚠ DANGER

Falling ceiling anchor plate

Make sure that no-one is standing below the ceiling anchor plate ③ whilst it is being installed.

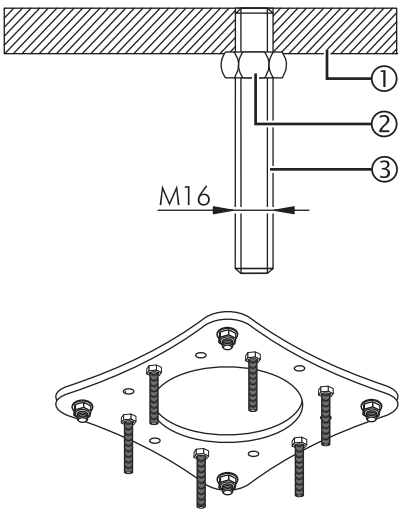
4. Position the ceiling anchor plate ③ on an M16 threaded bolt ① and screw on loosely with a washer and M16 hexagon nut ②.
5. Push the three remaining threaded bolts ① into the ceiling anchor plate ③ and screw each one firmly in place using 1 washer and hexagon nut ②.

Tightening the hexagon nuts:

6. Tighten the hexagon nuts ② uniformly to 195Nm.

- At the same time, prevent the counterplates ① from turning.

Figure 4



6.1 Installing Threaded Bolts on the Ceiling Anchor Plate

1. Screw the hexagon nuts ② onto the threaded bolts ③ (length 110mm) at intervals of min. 25mm.

⚠WARNING

Danger of the lighting system falling

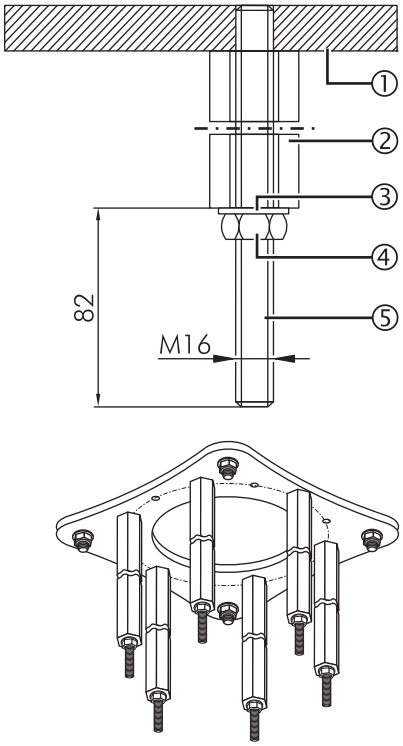
Screw threaded bolt ③ into the ceiling anchor plate ① as far as it will go.

2. Screw six threaded bolts ③ as far as they will go into the ceiling anchor plate ①.

Tightening the hexagon nuts:

3. Tighten the hexagon nuts ② uniformly to 195Nm.

Figure 5



6.2 Installing Optional Spacers on the Ceiling Anchor Plate

The length of the six spacers depends on the specific order.

⚠WARNING

Danger of the lighting system falling

Screw threaded bolt ③ into the ceiling anchor plate ① as far as it will go.

1. Screw six threaded bolts ⑤ as far as they will go into the ceiling plate ①.
2. Push the spacers ② onto the threaded bolts ⑤ and put a washer ③ and a hexagon nut ④ on each of them.

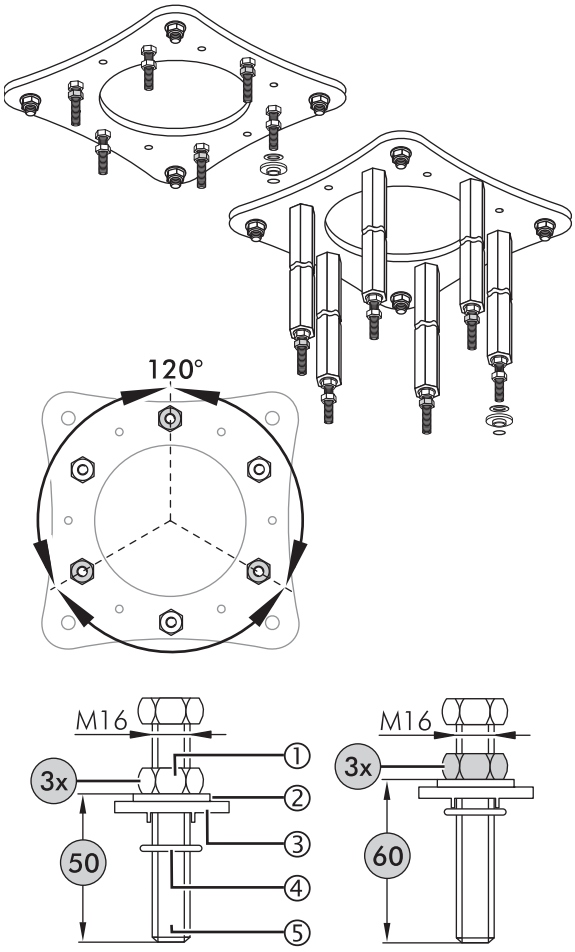
Tightening the hexagon nuts:

3. Tighten the hexagon nuts ④ to 195Nm.

- Check that the spacers ② are securely in place.

7 Installing the Ceiling Flange

Figure 6



7.1 Preparing for Installation

Irrespective of the attachment elements specified in "Section 6", page 19**, the following settings always remain the same.**

1. Screw three hexagon nuts ①, offset by 120° and spaced 50 mm, onto 3 threaded bolts ⑤.
- Screw the remaining 3 hexagon nuts ① a little higher e.g. 60 mm.

Aligning the hexagon nuts horizontally:

2. Horizontally align the three lower hexagon nuts ① (spaced 50 mm) using a spirit level.

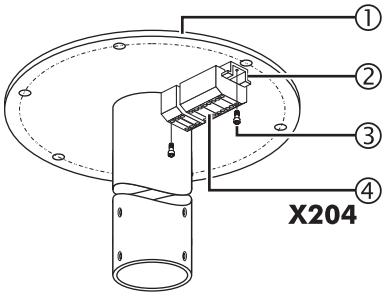
Installing upper insulation:

3. Put a washer ② and plastic insulating disk ③ on the M16 threaded bolt ⑤ and secure using an O-ring ④.
4. Repeat this procedure for the remaining 5 threaded bolts ⑤.

7.2 Installing Components on the Ceiling Flange for the Power Supply using Control Box Plates

If <u>no</u> interface plate is installed on the ceiling tube of the ceiling flange, further components must be installed on the ceiling flange depending on the particular iLED lighting system variant.
Install the components on the floor beforehand according to the following sections and then install the ceiling flange as described in "Section 7.3", page 25.

Figure 7



7.2.1 Variant: Light head without camera and cable lengths of 1 - 20 m

Components to be installed:

- 1 top-hat rail and 1 terminal

1. Screw the top-hat rail ② to the ceiling flange ① using two M5 x 16mm socket head cap screws ③.
2. Push the terminal ④ onto the top-hat rail ② and check that it is securely in place.

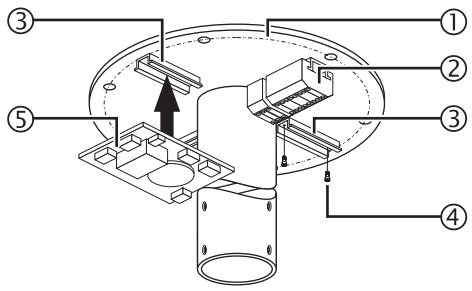
Electrical connection for iLED 5 / iLED 5 LCH / iLED 3 light heads:

- Route the cables into the control box plate in the control box and connect according to circuit diagram #4025890.

Electrical connection for iLED 3 LCH light head:

- Route the cables into the control box plate in the control box and connect according to circuit diagram #1431888.

Figure 8



7.2.2 Variant: Light head without camera and cable lengths of 21 - 50 m

Components to be installed:

- 1 top-hat rail and 1 terminal
- 1 top-hat rail and 1 filter board per light head

Installing the top-hat rails ③:

1. For each component, screw one top-hat rail ③ to the ceiling flange ① using two M5 x 16 mm socket head cap screws ④.

Installing the terminal ②:

2. Install one terminal ② as described in "Section 7.2.1", page 21, point 2et seqq.

Installing the filter board(s) ⑤:

NOTE
Filter boards: • The filter board ⑤ (without Powerline additional board) is required to boost the control signals from the light head where the cables are between 21 - 50 m in length.

3. For each light head, fit one filter board ⑤ on the top-hat rail ③ and check that it is securely in place.

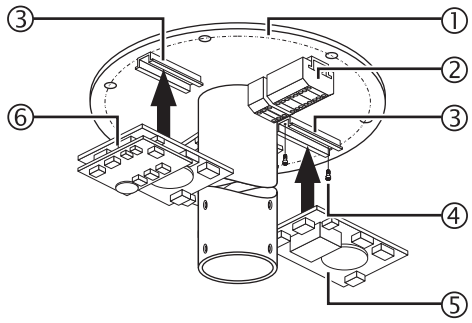
Electrical connection for iLED 5 / iLED 5 LCH / iLED 3 light heads:

- Route the cables into the control box plate in the control box and connect according to circuit diagram #4025743.

Electrical connection for iLED 3 LCH light head:

- Route the cables into the control box plate in the control box and connect according to circuit diagram #1431892.
- Remove the jumpers in A and B on terminal X204.

Figure 9



7.2.3 Variant: Light head with camera and cable lengths of 1 - 50 m

Components to be installed:

- 1 top-hat rail and 1 terminal
- 1 top-hat rail and 1 filter board per light head without camera
- 1 top-hat rail and 1 filter board with Powerline additional board per light head with camera

Installing the top-hat rails ③:

1. For each component, screw one top-hat rail ③ to the ceiling flange ① using two M5 x 16 mm socket head cap screws ④.

Installing the terminal ②:

2. Install one terminal ② as described in "Section 7.2.1", page 21, point 2et seqq.

Installing the filter board(s) ⑤:

NOTE

Filter boards:

- The filter board with Powerline additional board ⑥ is required to boost the video signal from the camera and the control signals from the light head.
- The filter board ⑤ (without Powerline additional board) is required to boost the control signals from further light heads without camera where the cables are between 21 - 50 m in length.

3. For each light head, fit one filter board ⑤ on the top-hat rail ③ and check that it is securely in place.

Install filter board with Powerline additional board ⑥:

4. Fit one filter board with Powerline additional board ⑥ for the camera connection on the top-hat rail ② and check that it is securely in place.

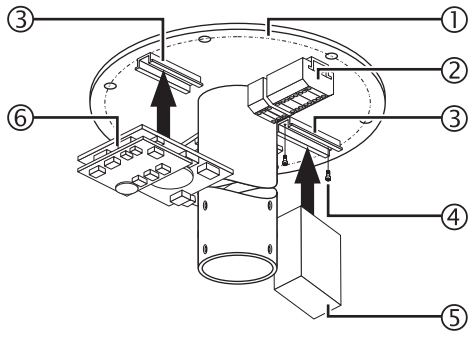
Electrical connection for iLED 5 light head:

5. Route the cables into the control box plate in the control box and connect according to the relevant circuit diagram #4025895.

Electrical connection for iLED 3 LCH light head:

6. Route the cables into the control box plate in the control box and connect according to circuit diagram #1442682.

Figure 10



7.2.4 Variant with camera on separate pendant

Components to be installed:

- 1 top-hat rail and 1 terminal
- 1 top-hat rail and 1 power supply unit
- 1 top-hat rail and 1 filter board with Powerline additional board

Installing the top-hat rails ③:

1. For each component, screw one top-hat rail ③ to the ceiling flange ① using two M5 x 16mm socket head cap screws ④.

Installing the terminal ②:

2. Install one terminal ② as described in "Section 7.2.1", page 21, point 2et seqq.

Install power supply unit ⑤ for 230 V building power supply:

3. Fit the power supply unit ⑤ for the camera on the top-hat rail ③ and check that it is securely in place.

Installing filter board with Powerline additional board ⑥:

NOTE
Filter boards: • The filter board with Powerline additional board ⑥ is required to boost the video signal from the camera. • If there are more light heads and cable lengths of 21 - 50m (an)other filter board(s) (without Powerline additional board) must be installed to boost the control signals from the light head.

4. Fit one filter board with Powerline additional board ⑥ for the camera connection on the top-hat rail ③ and check that it is securely in place.

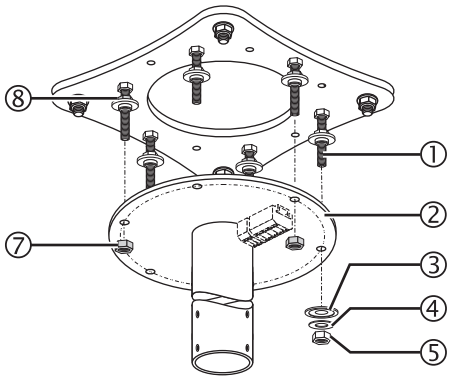
Electrical connection for 230V:

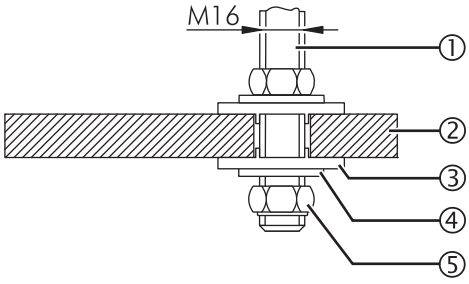
5. Connect cables for 230 V building power supply according to circuit diagram #1432289.

Electrical connection for 24V:

6. Connect cables for 24 V building power supply according to circuit diagram #1440162.

Figure 11





7.3 Installing the Ceiling Flange

1. Place the ceiling flange ② on the 6 threaded bolts ① and, using three hexagon nuts ⑦, turn and move to the position of the **non-**aligned hexagon nuts (spaced 60mm).

⚠WARNING

Danger of the lighting system falling

Screw the hexagon nuts ⑥ onto the threaded bolts ① as far as they will go.

Installing lower insulation:

2. Fit a plastic insulating disk ③, washer ④ and self-locking hexagon nut ⑤ on the three aligned threaded bolts ①.
3. Gently tighten the three hexagon nuts ⑤.

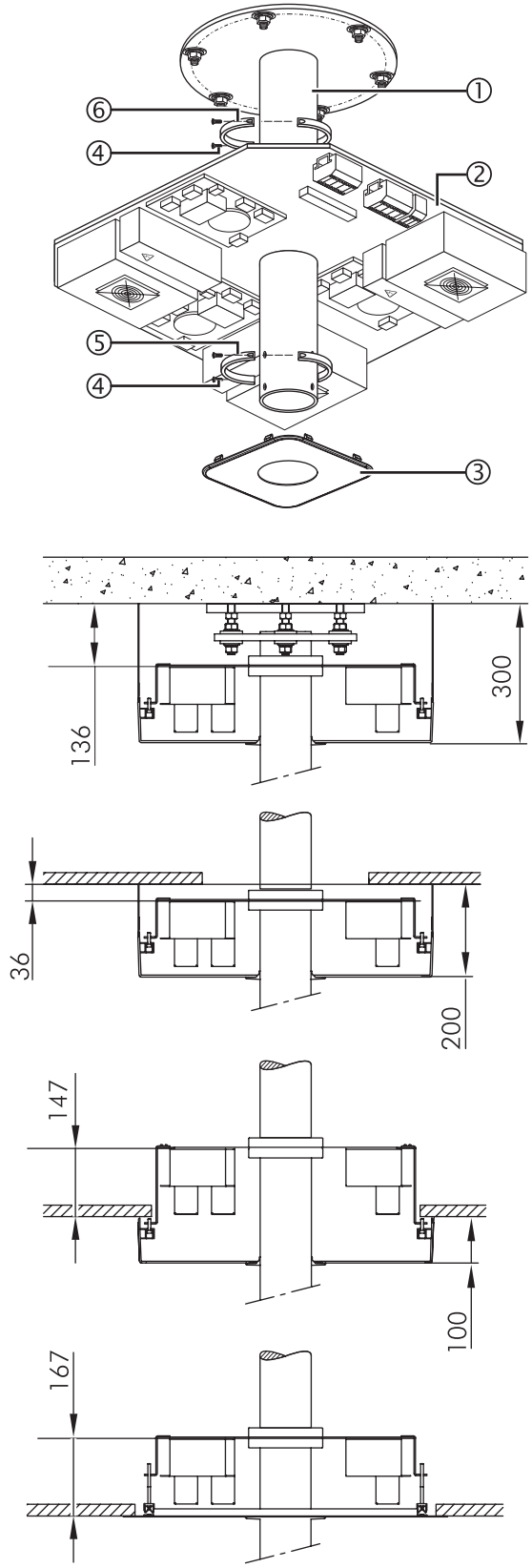
Checking horizontal alignment:

4. Check the horizontal alignment of the ceiling flange ② and tighten the 3 self-locking hexagon nuts ⑤ to 70Nm.
5. Screw the three upper hexagon nuts ⑧ downward (spaced 60mm).
6. Remove the three hexagon nuts ⑦ (that were previously fitted) from the threaded bolts ①, fit them as described in point 2, and tighten to 70Nm.

- Check that the ceiling flange ② is securely in place.

8 Installing an Interface Plate or Canopy Retainer Plate

Figure 12



8.1 Installing an Interface Plate

If there is <u>no</u> interface plate installed, then the canopy retainer plate must be installed as described in "Section 8.2", page 27.

Preparing to install the split rings ⑤/⑥:

1. Prepare two split rings ⑤/⑥ by screwing 2 socket head cap screws and M8 x 40mm retaining washers ⑤.

Adjusting the height of the interface plate:

2. Slide the split ring ⑥ onto the ceiling tube ①.
3. Adjust the height on the lower edge of the split ring ⑥ on the ceiling tube ①:

- With canopy:
  - Canopy 300 = 136mm
  - Canopy 200 = 36mm
  - Canopy 100 = 147mm

- With ceiling screen:
  - Ceiling screen = 167mm

4. Tighten the M8 x 40mm socket head cap screws ④ on the split ring ⑥.

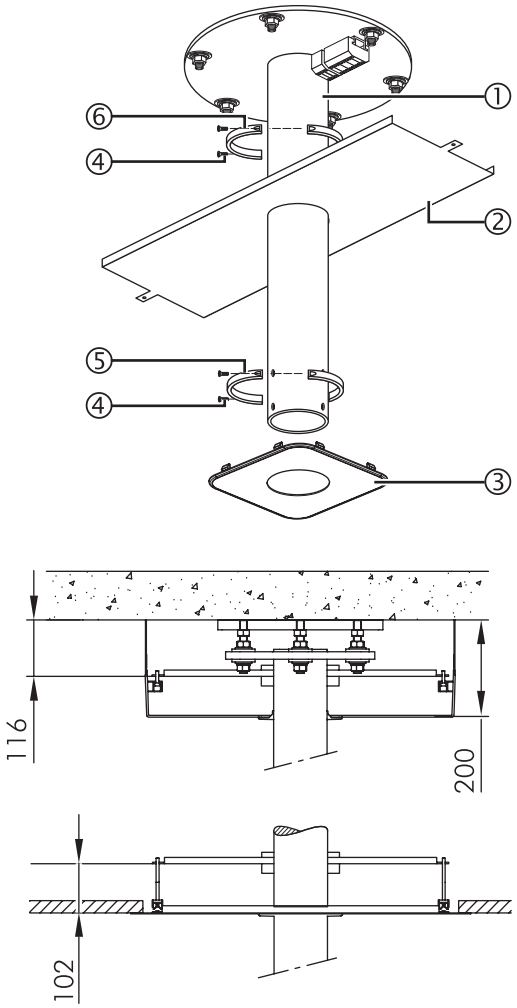
Installing the interface plate:

5. Slide the interface plate ② and the second split ring ⑤ onto the ceiling tube ① and align in accordance with the ceiling recess.
6. Tighten the M8 x 40mm socket head cap screws ④ on the split ring ⑤.
7. Check that the interface plate ② is securely in place.

Installing the canopy cover ③:

8. Slide the canopy cover ③ onto the ceiling tube ①.
9. Prevent the canopy cover ③ from falling down until the canopy or ceiling screen is installed.

Figure 13



8.2 Installing a Canopy Retainer Plate

In order to later install the canopy and/or a ceiling screen, the canopy retainer plate must be installed.

Preparing to install the split rings ⑤/⑥:

1. Prepare two split rings ⑤/⑥ by screwing 2 socket head cap screws and M8 x 40mm retaining washers ⑤ into each.

Adjusting the height of the canopy retainer plate:

2. Slide the split ring ⑥ onto the ceiling tube ①.
3. Adjust the height on the lower edge of the split ring ⑥ on the ceiling tube ①:

- With canopy:
  - Canopy 200 = 116 mm

- With ceiling screen:
  - Ceiling screen = 102 mm

4. Tighten the M8 x 40mm socket head cap screws ④ on the split ring ⑥.

Installing the canopy retainer plate:

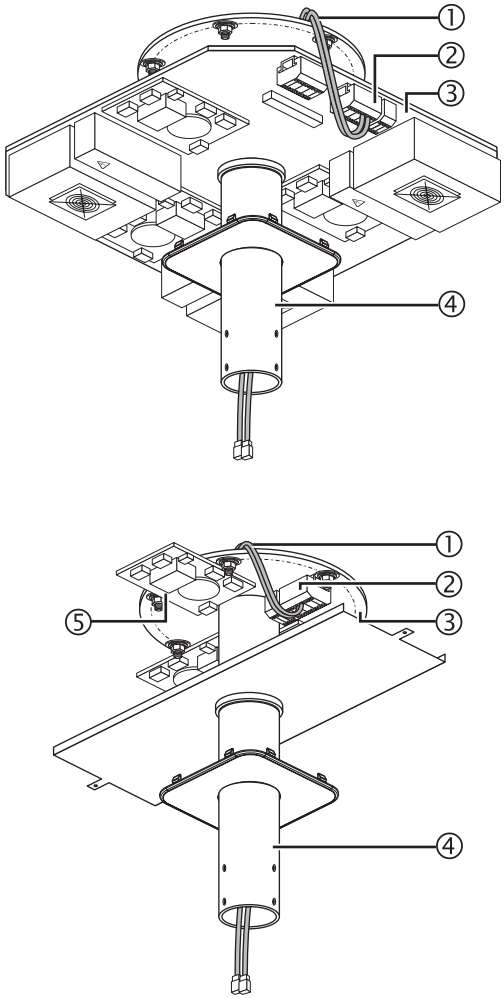
5. Slide the canopy retainer plate ② and second split ring ⑤ onto the ceiling tube ① and align in accordance with the ceiling recess.
6. Tighten the M8 x 40mm socket head cap screws ④ on the split ring ⑤.
7. Check that the canopy retainer plate ② is securely in place.

Installing the canopy cover ③:

8. Slide the canopy cover ③ onto the ceiling tube ①.
9. Prevent the canopy cover ③ from falling down until the canopy or ceiling screen is installed.

9 Installing the Central Axis with Extension Arm

Figure 14



9.1 Routing Five-pole Cables for Light Heads without Camera through the Ceiling Tube

The separate 5-pole cables for light heads without camera must first be routed through the ceiling tube to the terminal on the interface plate or the ceiling flange.
The 5-pole cables must be labeled to enable the light heads without camera to be connected without any risk of confusion.

Labeling five-pole cables:

1. Label the five-pole cables ① with numbers on the ends of the cable (depending on the number of light heads without camera).

Routing five-pole cables through the ceiling tube:

NOTICE

Take care not to damage the cables

Carefully, without using a great deal of force, route the cables ① through the central tube ④.

2. Route the five-pole cables ① through the ceiling tube ④ to terminal (X201) ② on the interface plate or route them directly to the filter board (X9) ⑤ on the ceiling flange ③.

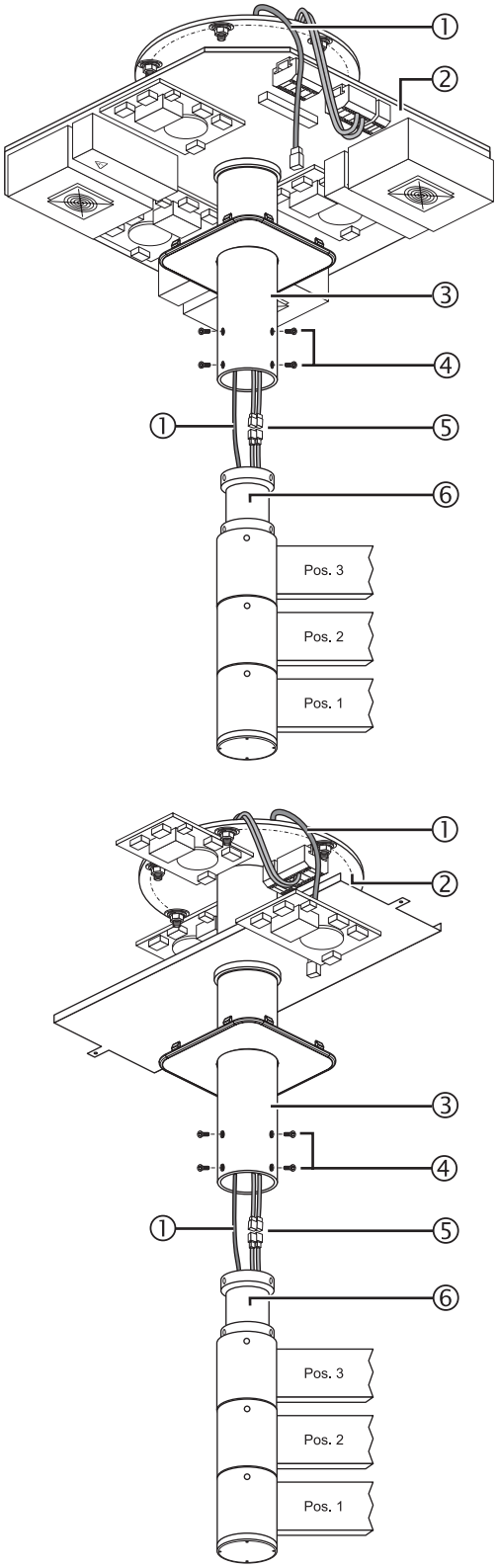
Connecting the five-pole cables to the interface plate:

- Connect the five-pole cables ① in accordance with the circuit diagrams:
- 230/24 V supply voltage #1431878,
- 24/24 V supply voltage) #1431885,
- 24 V supply voltage #1431887,
- 230 V supply voltage #1431882,
- 230/230V supply voltage #1431884,
  and your cable labeling to terminal Klemme ② on the interface plate.

Connecting five-pole cables to the ceiling flange:

1. Connect the five-pole cables ① in accordance with the circuit diagrams:
- connection lengths 1 - 20 m #4025890,
- connection lengths 21 - 50 m #4025743,
  and your cable labeling to terminal ② on the ceiling flange ③.

Figure 15



9.2 Routing Seven-pole Cables for Light Heads with Camera through the Ceiling Tube

The 7-pole cables from the central axis must be routed through the ceiling tube to the interface plate or the ceiling flange.
The 7-pole cables from the central axis must be labeled to enable the light heads with camera to be connected without any risk of confusion.

Labeling seven-pole cables:

1. Label the seven-pole cables ① with numbers on the ends of the cable (depending on the number of light heads without camera).

Routing seven-pole cables through the ceiling tube:

NOTICE

Take care not to damage the cables

Carefully, without using a great deal of force, route the cables ① through the central tube ③.

2. Route the seven-pole cables ① through the ceiling tube ③ to the interface plate or the ceiling flange ③.

9.3 Installing the Central Axis

NOTICE

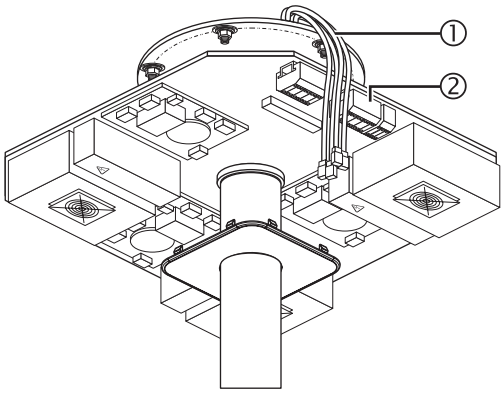
Make sure that the central axis is not tilted.

- It should be possible to install the central axis ⑥ without using a great deal of force.
- Take care not to damage the cables.

1. Using the lifting device, raise the central axis ⑥.
2. Connect 5-pole cable plugs ⑤ (see “Section 9.1”, page 28).
3. Insert the central axis ⑥ into the ceiling tube ③ and screw it in place using 8 M6 x 10mm countersunk head screws ④.
4. Tighten the eight M6 x 10mm countersunk head screws ④ to 10Nm.
5. Check that the central axis ⑥ is securely in place.
6. Fit the eight M6 x 10mm countersunk head screws ④ with plastic caps.

10 Connecting the Cables

Figure 16

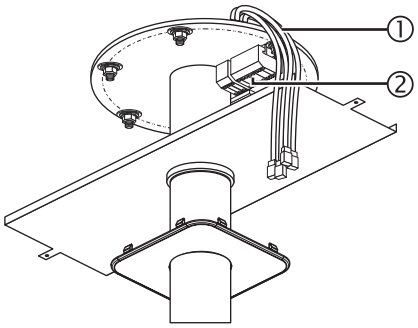


10.1 Connection Variants for Light Heads without Camera

10.1.1 Connection to the interface plate

1. Connect the connecting cable plugs ① in accordance with your cable labeling in “Section 9.1”, page 28 and the circuit diagrams:
- 230/24 V supply voltage #1431878,
- 24/24 V supply voltage #1431885,
- 230 V supply voltage #1431882,
- 230/230 V supply voltage #1431884,
- iLED 3 LCH for all supply voltages #1431896 to terminal ②.
2. Connect the connecting cables (to be laid by customer) to the terminals ②.

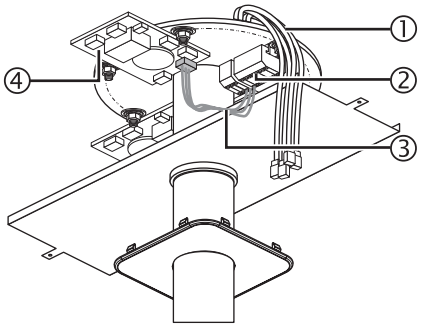
Figure 17



10.1.2 Connection via interface plate(s) where cables are between 1 - 20m in length

1. Disconnect the connecting cable plugs ①.
2. Connect the connecting cables ① in accordance with your cable labeling in “Section 9.1”, page 28 and the
- circuit diagram #4025890,
- for iLED 3 LCH in accordance with circuit diagram #1431888 to the terminals ② on the ceiling flange.
3. Connect the ground conductor to the terminal ②.
4. Connect the connecting cables (to be laid by customer) from the control box plate(s) to the terminals ②.

Figure 18

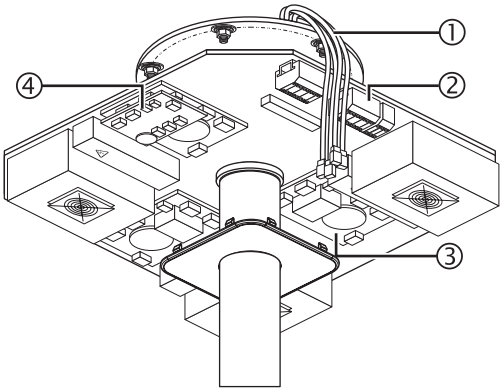


10.1.3 Connection via interface plate(s) where cables are between 21 - 50m in length

1. Connect the connecting cable plugs ① in accordance with your cable labeling in "Section 9.1", page 28 and in accordance with the circuit diagram
   - #4025743,
   - for iLED 3 LCH in accordance with circuit diagram #1431892,

   to the filter board(s) ④ on the ceiling flange.
2. Connect the ground conductor to the terminal ②.
3. For each light head, connect one of the connecting cables (W18) ③ supplied to the terminal ② and connect the plug to the corresponding filter board ④.
4. Connect the connecting cables (to be laid by the customer) from the control box plate(s) to the terminals ②.

Figure 19



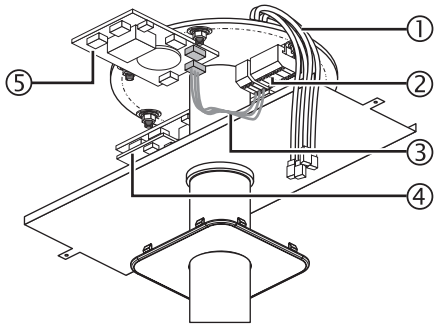
10.2 Connection Variants for Light Heads with Camera

10.2.1 Connection to the interface plate

1. Insert the connecting cable plugs ① in accordance with your cable labeling in “Section 9.1”, page 28 and the circuit diagram
- #1434128,
- for iLED 3 LCH in accordance with circuit diagram #1442682,

   into the Powerline additional board ④ on the interface plate.
2. Connect the connecting cables (to be laid by customer) to the terminals ②.
3. Plug the video signal cable for the camera into the Powerline additional board ④.
4. Plug the connecting cable (Type RJ45) from the controller (TruVidia) into the Powerline additional board ④.

Figure 20

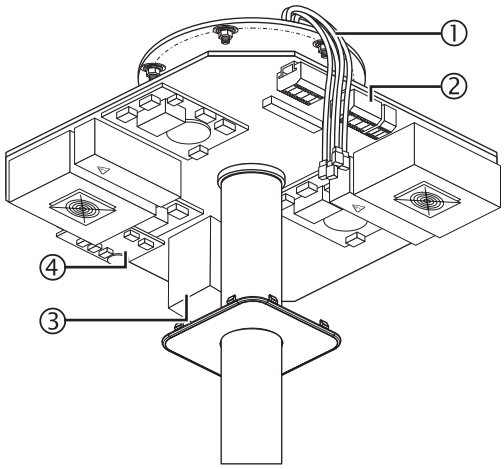


10.2.2 Connection via control box plate(s)

1. Insert the connecting cable plugs ① in accordance with your cable labeling in “Section 9.1”, page 28 and the circuit diagram
- #4025895,
- for iLED 3 LCH in accordance with circuit diagram #1442682,

   into the Powerline additional board ④ on the ceiling flange.
2. Connect the connecting cables (to be laid by customer) to the terminals ②.
3. For each light head, connect one of the connecting cables (W18) ③ supplied to the terminal ② and connect the cable to the corresponding filter board(s) ⑤.
4. Connect the ground conductor from the Powerline additional board ④ to the terminal ②.
5. Plug the video signal cable for the camera into the Powerline additional board ④.
6. Plug the connecting cable (Typ RJ45) from the controller (TruVidia) into the Powerline additional board ④.

Figure 21



10.3 Connection Variant for Camera on Separate Pendant

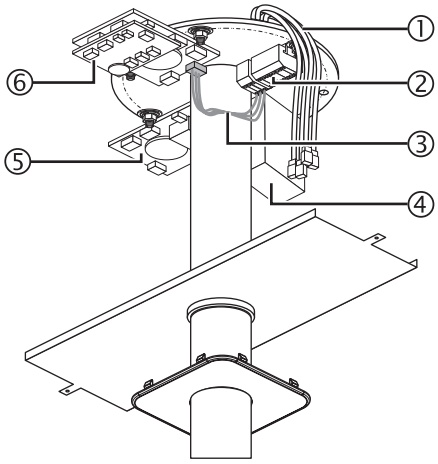
10.3.1 Connection to the interface plate

1. Insert the connecting cable plugs ① in accordance with your cable labeling in “Section 9.1”, page 28 and the circuit diagrams:
- 230 V camera on separate pendant #1432289,
- 24 V camera on separate pendant #1440162,
- 230/24 V supply voltage #1431878,
- 24/24 V supply voltage #1431885,
- 230 V supply voltage #1431882,
- 230/230 V supply voltage #1431884,

into the Powerline additional board ④ on the interface plate.

2. Connect customer's connecting cables to the terminals ②.
3. Plug the video signal cable for the camera into the Powerline additional board ④.
4. Plug the connecting cable (Type RJ45) from the controller (TruVidia) into the Powerline additional board ④.

Figure 22



10.3.2 Connection via control box plate(s)

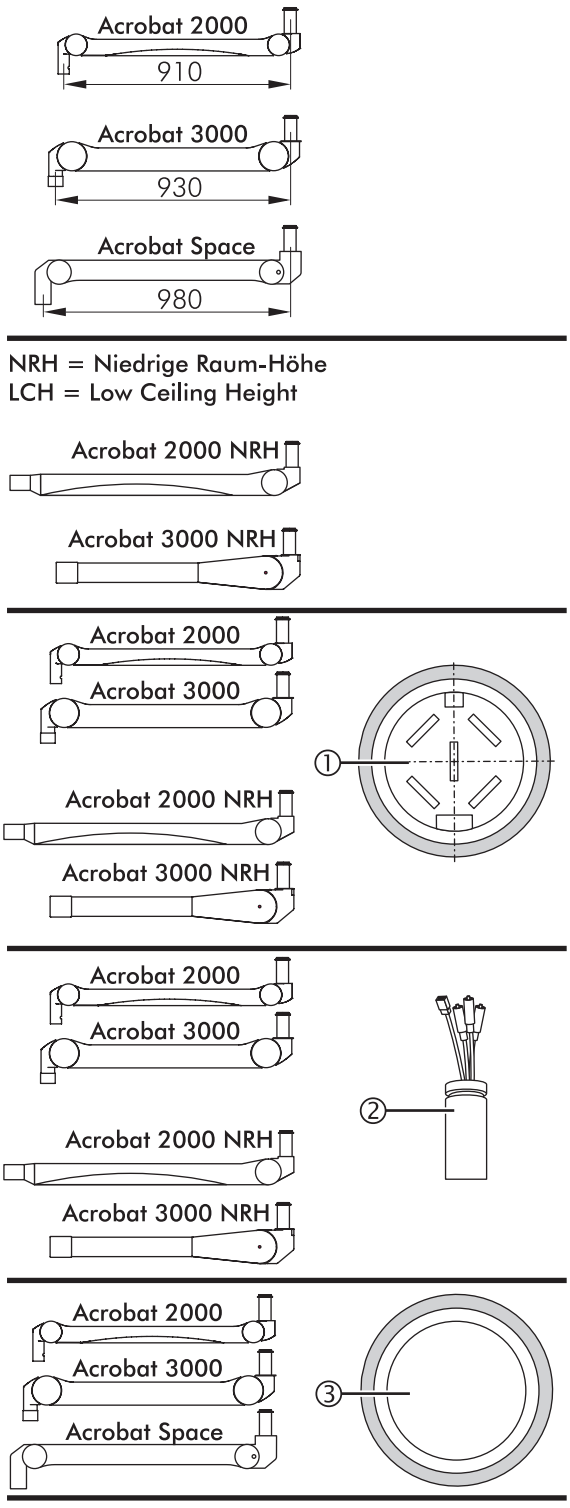
1. Insert the connecting cable plugs ① in accordance with your cable labeling in “Section 9.1”, page 28 and the circuit diagrams:
- 230V camera on separate pendant #1432289,
- 24 V camera on separate pendant #1440162,
- connection lengths 1 - 20m #4025890,
- connection lengths 21 -50m #4025743,

into the Powerline additional board ⑥ on the ceiling flange.

2. For 24 V building power supply: connect the connecting cable (W18) ③ supplied to the terminal ② and connect the plug to the corresponding filter board ⑤.
3. For 230 V building power supply: connect the power supply unit ④ with the connecting cable (W24) to the terminal ②.
   Connect the filter board with the connecting cable (W25) to the power supply unit.
4. Plug the video signal cable for the camera into the Powerline additional board ⑥.
5. Plug the connecting cable (Type RJ45) from the controller (TruVidia) into the Powerline additional board ⑥.
6. Connect the ground conductor from the Powerline additional board ⑥ to the terminal ②.

11 Installing a Spring Arm

Figure 23



11.1 Spring Arm Versions

In general:

- one iLED 5 light head is installed on a
  - Acrobat 3000 spring arm or
  - Acrobat 3000 LCH spring arm (**L**ow **C**eiling **H**eight),
- one iLED 3 light head is installed on a
  - Acrobat 2000 spring arm or
  - Acrobat 2000 LCH spring arm (**L**ow **C**eiling **H**eight).
- the camera on the separate pendant is mounted on the Acrobat 2000 spring arm,
- the vidiaPORT monitor holders are mounted on an Acrobat 2000, Acrobat 3000 or Acrobat Space.

11.1.1 Spring arm equipment

For the different versions of the iLED lighting system, e.g.: light head with/without camera or for the vidiaPORT monitor installations, the spring arms come with different equipment.

The simplest way of telling the application is to look at the connecting spigot of the spring arm:

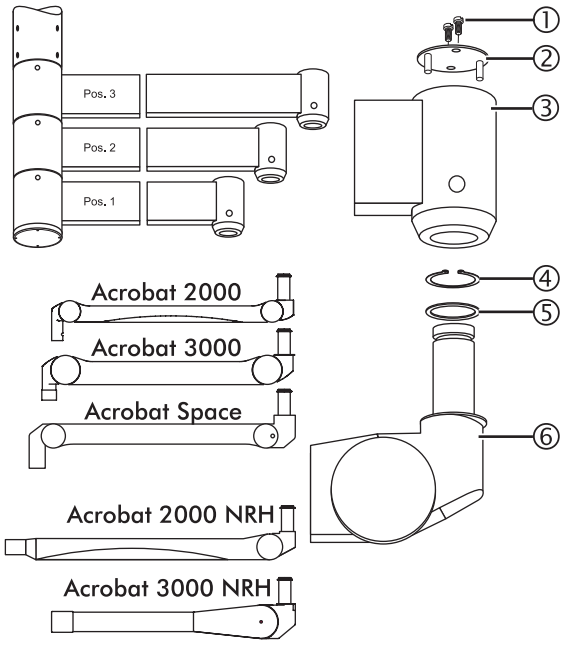
1. Spring arm with 5-pole rotating commutator ① for the installation of light heads (see “Section 11.3”, page 36).
2. Spring arm with 7-pole cabling ② for the installation of light heads with camera or camera on a separate pendant (see “Section 11.4”, page 37).
3. Hollow spring arm ③ for routing cables for monitor installations, e.g. vidiaPORT (see “Section 16”, page 50).

- The hollow spring arms ③ are rotation-limited to approx. 330 degrees, to prevent the routed cables from twisting.
- The range of the Acrobat Space spring arm can be adjusted.

11.1.2 Spring arm adjustments

The tension for counterbalancing the weight of the light head or monitor, the brake force and how to adjust the spring arm height limit can be found in “Section 18”, page 68.

Figure 24



11.2 Preparing for Installation for all Spring Arm Variants

1. Undo the two screws ① and remove the cover ② on the extension arm ③.

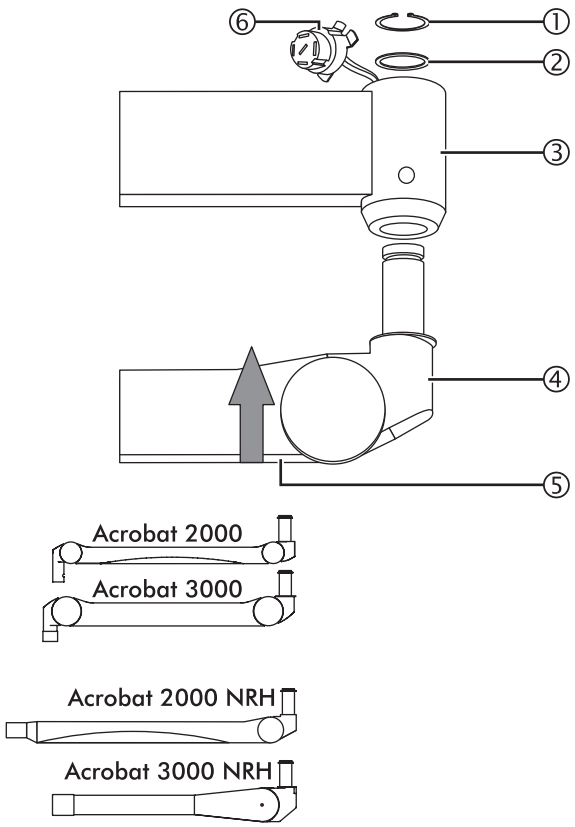
⚠ WARNING

Danger of the lighting system falling

Take care **not** to overextend the circlip ④ when removing.

2. Remove the circlip ④ from the spring arm ⑥.
3. Remove the disk ⑤ from the spring arm ⑥.

Figure 25



11.3 Installing Spring Arm for Light Head without Camera

Feature of the spring arms:

- 5-pole rotating commutator ⑥ in the connecting spigot of the spring arm (see "Section 11.1", page 34).

Installing the spring arm:

1. Carefully pull the 5-pole plug ⑥ out of the extension arm ③.

NOTICE

Raising the spring arm

- Only raise the spring arm ⑤ **at the point illustrated by the arrow.**
- **Never** lift the spring arm by the cover panels ④.

2. Raise the spring arm ⑤ at the point **indicated by the arrow** and insert it into the extension arm ③.

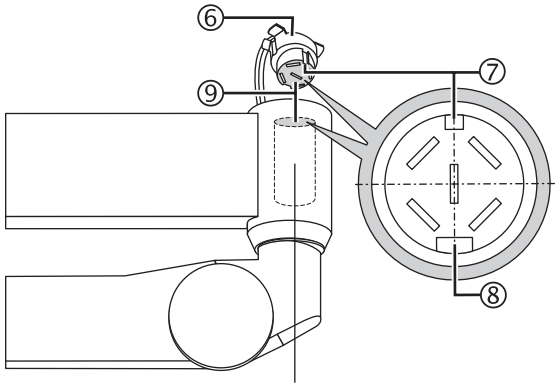
⚠ WARNING

Danger of the lighting system falling

The circlip ① must be fully engaged with the groove in the pivot of the spring arm.

3. Position the disk (1 piece) ② and install the circlip ①.
4. Check that the spring arm ⑤ is securely in place.

Figure 26



Connecting the plug:

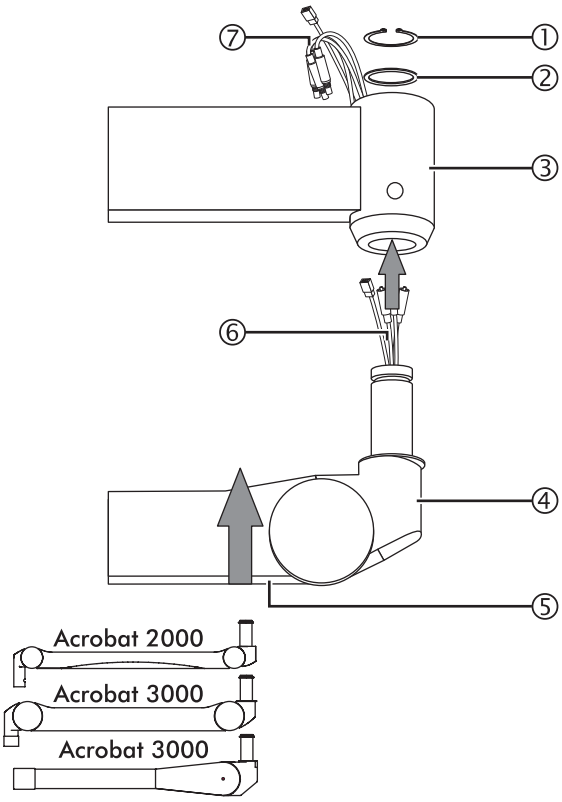
NOTE

Using the grooves to position the plug

- The plug connector ⑨ has one narrow groove ⑦ and one wide groove ⑧.
- When connecting the plug ⑨, the grooves ⑦/⑧ must be aligned with the corresponding grooves in the counterpart.

5. Carefully insert the plug ⑥ from above.
6. Check that the plug ⑥ is securely in place.
7. Install the cover as described in "Section 11.7", page 39.

Figure 27



11.4 Installing Spring Arm for Light Head with Camera

Feature of the spring arms:

- 7-pole cabling consisting of three threaded connectors and a 6-pole plug in the connecting spigot of the spring arm (see "Section 11.1", page 34).

Connecting the cables:

1. Carefully route the cables ⑦ into the extension arm ③ out the top of the extension arm ③.

NOTICE

Raising the spring arm

- Only raise the spring arm ⑤ **at the point illustrated by the arrow.**
- **Never** lift the spring arm by the cover panels ④.

2. Raise the spring arm ⑤ at the point **indicated by the arrow** and carefully route the cables ⑥ into the spring arm ⑤ through the extension arm ③.

Installing the spring arm:

3. Insert the spring arm ⑤ into the extension arm ③.

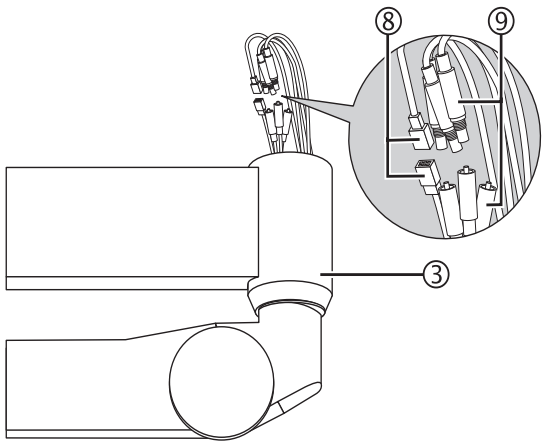
⚠ WARNING

Danger of the lighting system falling

The circlip ① must be fully engaged with the groove in the pivot of the spring arm.

4. Position the disk (1 piece) ② and install the circlip ①.
5. Check that the spring arm ⑤ is securely in place.

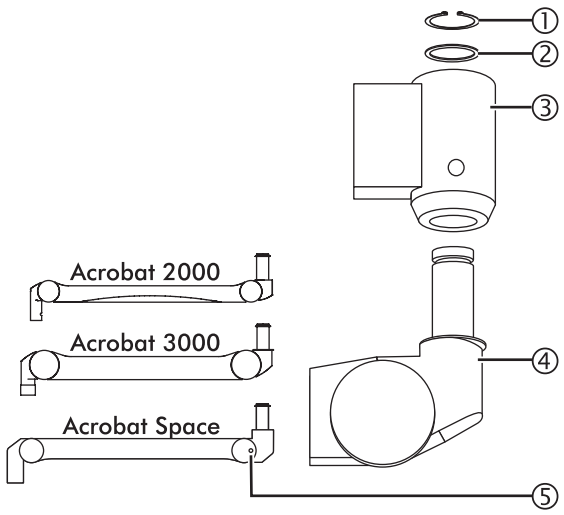
Figure 28



Connecting the plugs:

6. Connect up the three threaded connectors ⑧ according to the color code.
7. Connect the 6-pole plug ⑨.
8. Carefully push the threaded connectors ⑧ and 6-pole plug ⑨ back into the extension arm ③ from above.
9. Install the cover as described in "Section 11.7", page 39.

Figure 29



11.5 Installing Spring Arm for vidiaPORT Monitor Installations

Feature of the spring arms:

- Hollow connecting spigot for routing cables (see "Section 11.1", page 34).

⚠WARNING

Sudden release of the Acrobat Space spring arm

- If no monitor is mounted when the lock is disengaged, the spring arm will jump upward.
- Do not take out the locking pin ⑤ until the monitor is fully mounted.

Installing the spring arm:

1. Insert the spring arm ④ into the extension arm ③.
2. **Only Acrobat Space spring arm**: Adjust the arm stop as described in "Section 11.6", page 38.

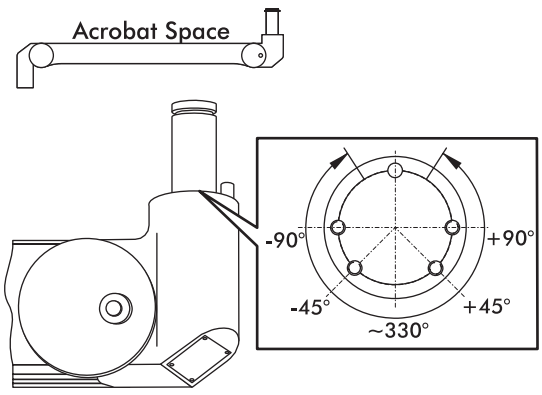
⚠WARNING

Danger of the lighting system falling

The circlip ① must be fully engaged with the groove in the pivot of the spring arm.

3. Position the disk (1 piece) ② and install the circlip ①.
4. Check that the spring arm ④ is securely in place.

Figure 30

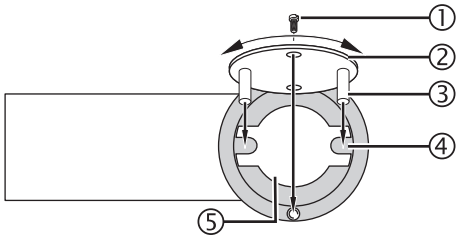


11.6 Adjusting Arm Stop on the Acrobat Space Spring Arm

The arm stop limits Acrobat Space spring arm rotation of the extension arm to approx. 330 degrees. The range can be further limited by installing an extra stop pin.

1. Check the arm stop of the spring arm in the extension arm.
- The spring arm must not collide with nearby walls or objects.

Figure 31



11.7 Installing the Cover

Only for spring arms for vidiaPORT monitor installations:

- Before installing the cover ② push the cables into the spring arm and extension arm.

Only for spring arms with 5-pole plug:

- The grub screws ③ in the cover ② keep the 5-pole plug ⑤ in place:

⚠ WARNING

Electric shock

When installing the cover ②, make sure that the grub screws ③ do not damage the internal cables!

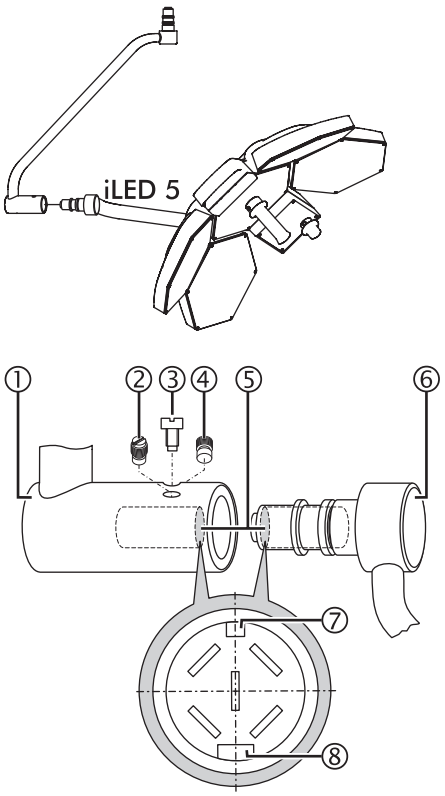
1. Position the cover ② in such a way that the two grub screws ③ are located in the cut-outs in the plug ④.

2. **Only for spring arms with 5-pole plug:** Carefully turn the cover ② with 5-pole plug ⑤ until the two screws ① can be screwed in.

3. Screw on the cover ② using two screws ①.
4. Check that the cover ② is securely in place.

12 Installing the Horizontal Bar on the iLED 5 Light Head

Figure 32



12.1 Installing the Horizontal Bar on the iLED 5 Light Head without Camera

1. Unscrew one securing screw ③.
2. Unscrew two brake screws ②/④.

Connecting the plug:

NOTE

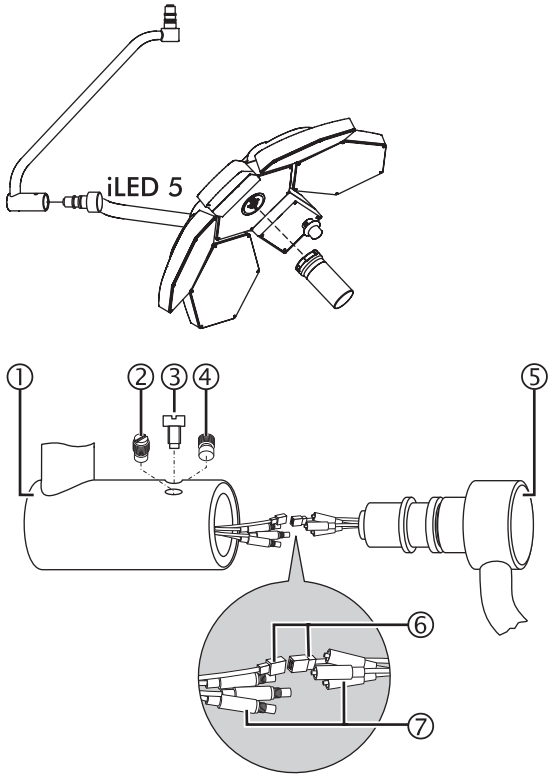
Using the grooves to position the plug

- The plug connector ⑤ has one narrow groove ⑦ and one wide groove ⑧.
- When connecting the plug ⑤, the grooves ⑦/⑧ must be aligned with the corresponding grooves in the counterpart.

Installing the horizontal bar:

3. Precisely insert the horizontal bar ① axially into the light head's gimbal joint ⑥.
4. Screw in a securing screw ③.
5. Screw in two brake screws ②/④.
6. Check that the horizontal bar ① is securely in place.
7. Continue installation as described in "Section 13.1", page 41.

Figure 33



12.2 Installing the Horizontal Bar on the iLED 5 Light Head with Camera

1. Unscrew one securing screw ③.
2. Unscrew two brake screws ②/④.

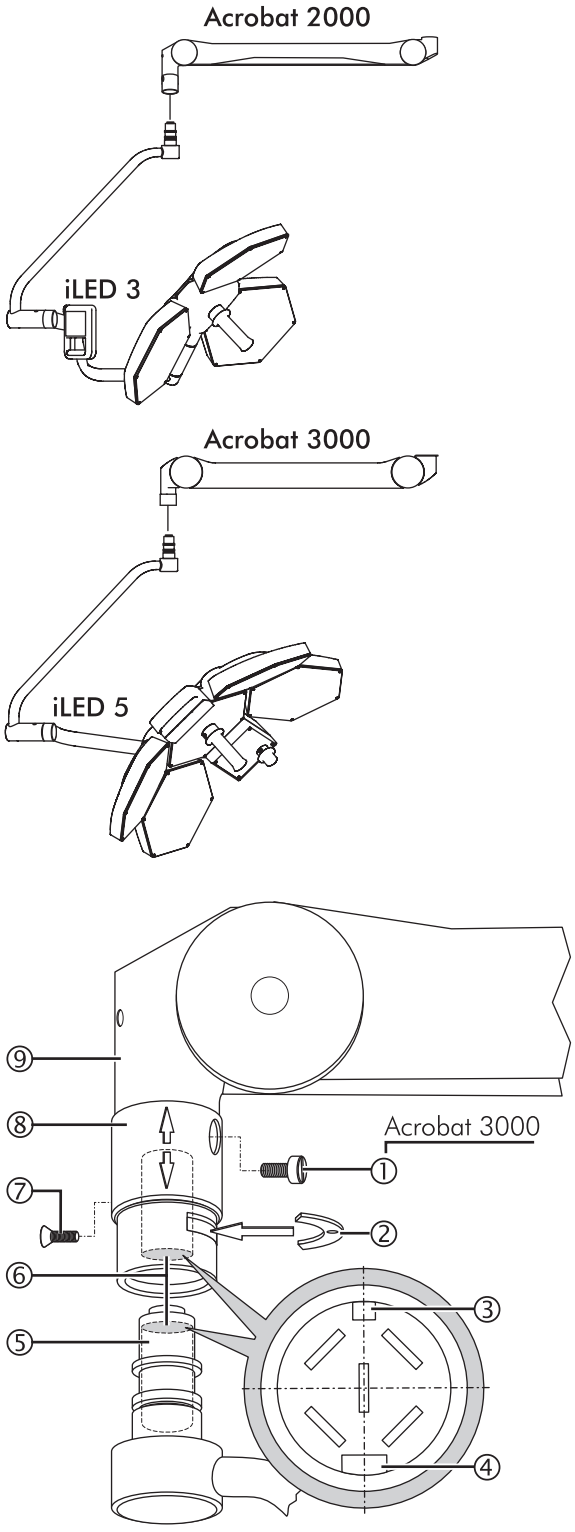
Connecting the plug:

3. Connect the 6-pole plug ⑥.
4. Connect up the three threaded connectors ⑦ according to the color code.
5. Carefully push the 6-pole plug ⑥ and threaded connectors ⑦ into the gimbal joint ①.

Installing the horizontal bar:

6. Precisely insert the horizontal bar ① axially into the light head's gimbal joint ⑤.
7. Screw in a securing screw ③.
8. Screw in two brake screws ②/④.
9. Check that the horizontal bar ① is securely in place.
10. Continue installation as described in "Section 13.4", page 44.

Figure 34



13.1 Installing the Light Head without Camera on the Acrobat 2000/3000 Spring Arm

The iLED 3 and iLED 5 light heads must be installed on different spring arms.

1. **Only Acrobat 3000 spring arm:** unscrew the M10 x 8.6mm slotted brake screw ①.
2. Unscrew the M3 x 8 mm countersunk screw ⑦ and slide the sleeve ⑧ upward.
3. Screw the M3 x 8mm countersunk screw ⑦ back in again to secure the sleeve ⑧.
4. Remove the locking segment ②.

Connecting the plug:

NOTE

Using the grooves to position the plug

- The plug connector ⑥ has one narrow groove ③ and one wide groove ④.
- When connecting the plug ⑤ the grooves ③/④ must be aligned with the corresponding grooves in the counterpart.

5. Precisely insert the light head ⑤ axially into the spring arm ⑨.

⚠WARNING

Danger of the light head falling

- If the wrong locking segment ② is fitted, the light head may fall.
- Only use an original locking segment ② for the spring arm in question.

6. Insert the locking segment ②, unscrew the M3 x 8 mm countersunk screw ⑦ and slide the sleeve ⑧ downward.

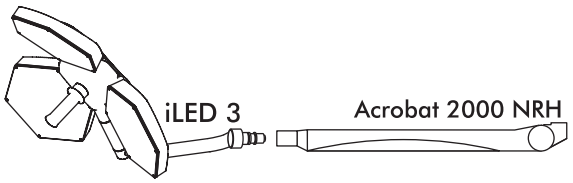
⚠WARNING

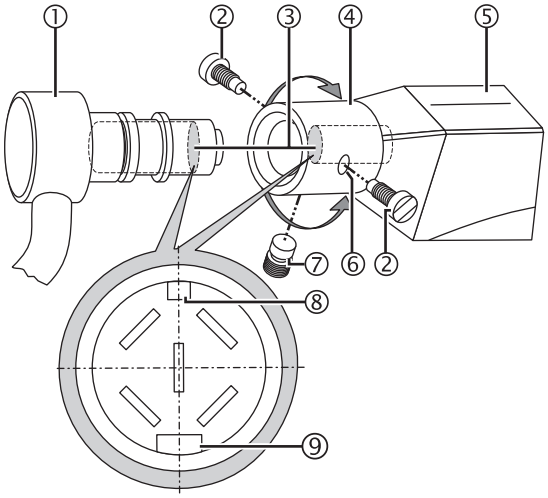
Danger of the light head falling

- Secure the sleeve ⑧ with an M3 x 8 mm countersunk screw ⑦.

7. Screw in the M3 x 8mm countersunk screw ⑦.
8. **Only Acrobat 3000 spring arm:** screw in the M10 x 8.6mm slotted brake screw ①.
9. Check that the light head ⑤ is securely in place.
10. Adjust the spring arm as described in “Section 18”, page 68.

Figure 35





13.2 Installing the iLED 3 Light Head without Camera on the Acrobat 2000 LCH Spring Arm

1. Unscrew the brake screw ⑦ on the underside of the sleeve ④.
2. Turn the sleeve ④ 90 degrees and unscrew the first end device securing screw ②.
3. Turn the sleeve ④ 180 degrees and unscrew the second end device securing screw ②.

Connecting the plug:

NOTE

Using the grooves to position the plug

- The plug connector ③ has one narrow groove ⑧ and one wide groove ⑨.
- When connecting the plug ③ the grooves ⑧/⑨ must be aligned with the corresponding grooves in the counterpart.

Installing the light head:

4. Precisely insert the light head ① axially into the spring arm ⑤.

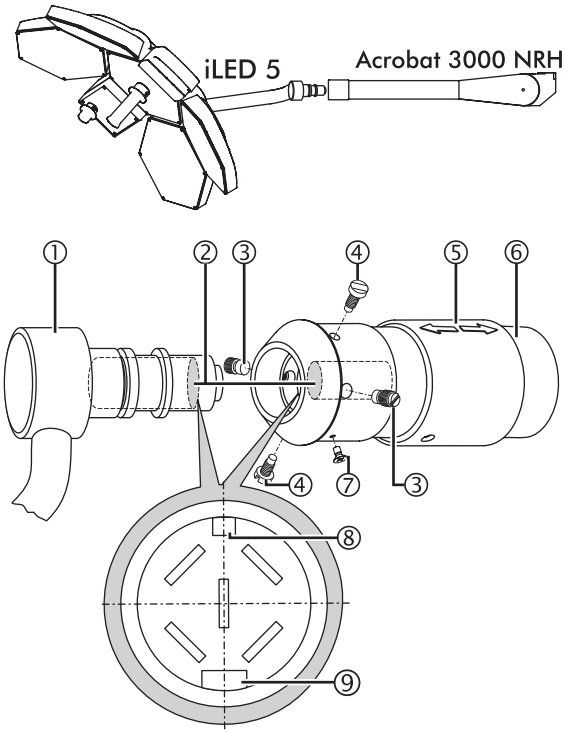
⚠ WARNING

Danger of the light head falling

- Secure the light head ① with two end device securing screws ②.

5. Screw in two end device securing screws ②.
6. Screw in one brake screw ⑦.
7. Check that the light head ① is securely in place.
8. Adjust the spring arm as described in “Section 18”, page 68.

Figure 36



13.3 Installing the iLED 5 Light Head without Camera on the Acrobat 3000 LCH Spring Arm

1. Carefully take out the sleeve securing screw ⑦ and slide the sleeve ⑤ backward.
2. Unscrew the two end device securing screws ④.
3. Unscrew the two brake screws ③.

Connecting the plug:

NOTE

Using the grooves to position the plug

- The plug connector ② has one narrow groove ⑧ and one wide groove ⑨.
- When connecting the plug ②, the grooves ⑧/⑨ must be aligned with the corresponding grooves in the counterpart.

Installing the light head:

4. Precisely insert the light head ① axially into the spring arm ⑥.
5. Screw in two end device securing screws ④.
6. Screw in the two brake screws ③.

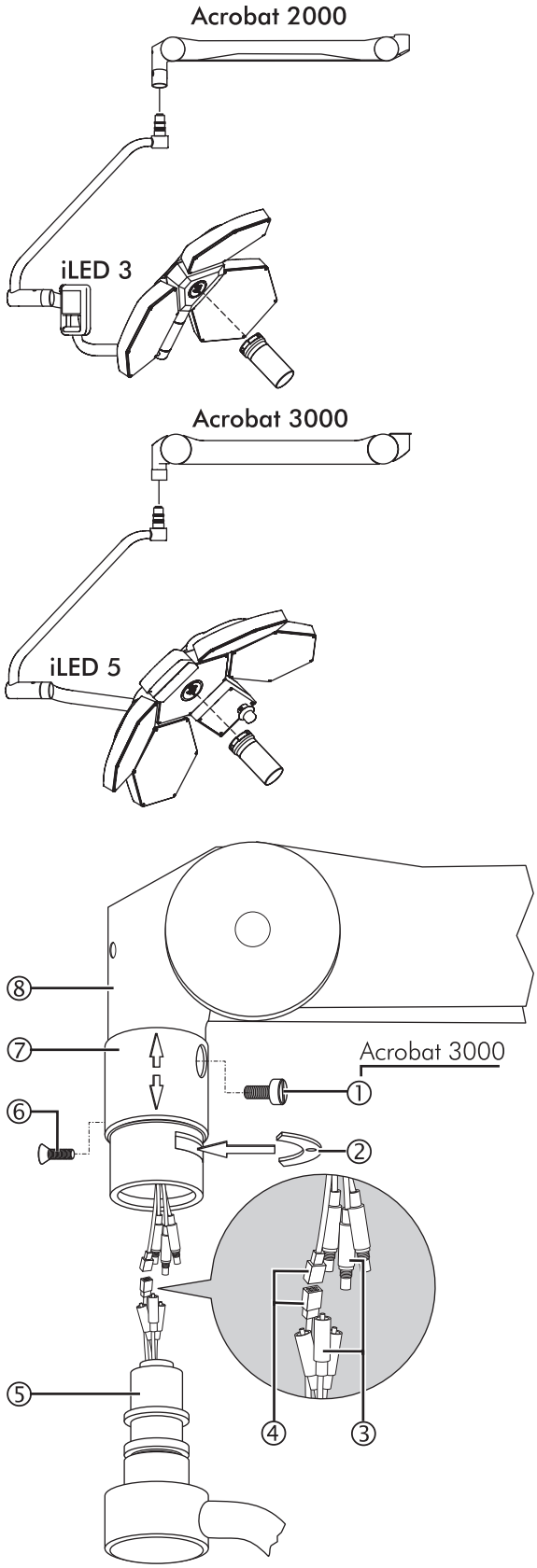
⚠ WARNING

Danger of the light head falling

- Secure the sleeve ⑤ with the sleeve securing screw ⑦.

7. Carefully slide the sleeve ⑤ forward and screw in the sleeve securing screw ⑦.
8. Check that the light head ① is securely in place.
9. Adjust the spring arm as described in “Section 18”, page 68.

Figure 37



13.4 Installing the Light Head with Camera on the Acrobat 2000/3000 Spring Arm

The iLED 3 and iLED 5 light heads must be installed on different spring arms.

1. **Only Acrobat 3000 spring arm:** unscrew the M10 x 8.6mm slotted brake screw ①.
2. Unscrew the M3 x 8mm countersunk screw ⑥ and slide the sleeve ⑦ upward.
3. Screw the M3 x 8mm countersunk screw ⑥ back in again to secure the sleeve ⑦.
4. Remove the locking segment ②.

Connecting the plug:

5. Connect up the three threaded connectors ③ according to the color code.
6. Connect the 6-pole plug ④.
7. Carefully push the screw connectors ③ and the 6-pole plug ④ into the spring arm ⑧.

Installing the light head:

8. Precisely insert the light head ①axially into the spring arm ⑧.
9. Insert the locking segment ②, unscrew the M3 x 8mm countersunk screw ⑥ and slide the sleeve ⑦ downward.

⚠ WARNING

Danger of the light head falling

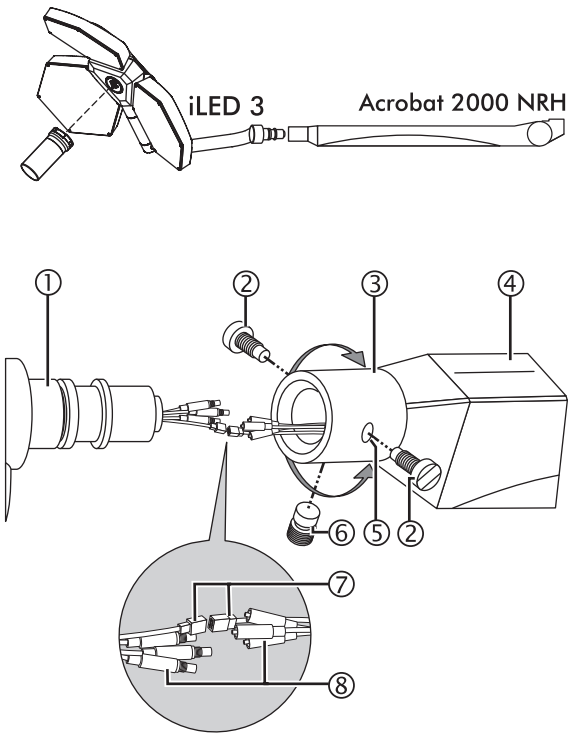
- Secure the sleeve ⑦ with an M3 x 8 mm countersunk screw ⑥.

10. Screw in the M3 x 8mm countersunk screw ⑥.
11. **Only Acrobat 3000 spring arm:** screw in the M10 x 8.6mm slotted brake screw ①.
12. Check that the light head ⑤ is securely in place.
13. Adjust the spring arm as described in “Section 18”, page 68.

Mounting the counterweight for the camera:

14. Connect the counterweight for the camera as described in “Section 15.1”, page 48.

Figure 38



13.5 Installing the iLED 3 Light Head with Camera on the Acrobat 2000 LCH Spring Arm

1. Unscrew the brake screw ⑥ on the underside of the sleeve ③.
2. Turn the sleeve ③ 90 degrees and unscrew the first end device securing screw ②.
3. Turn the sleeve ③ 180 degrees and unscrew the second end device securing screw ②.

Connecting the plug:

4. Connect the six-pole plug ⑦.
5. Connect up the three threaded connectors ⑧ according to the color code.
6. Carefully push the six-pole plug ⑦ and threaded connectors ⑧ into the spring arm ④.

Installing the light head:

7. Precisely insert the light head ① axially into the spring arm ④.

⚠WARNING

Danger of the light head falling

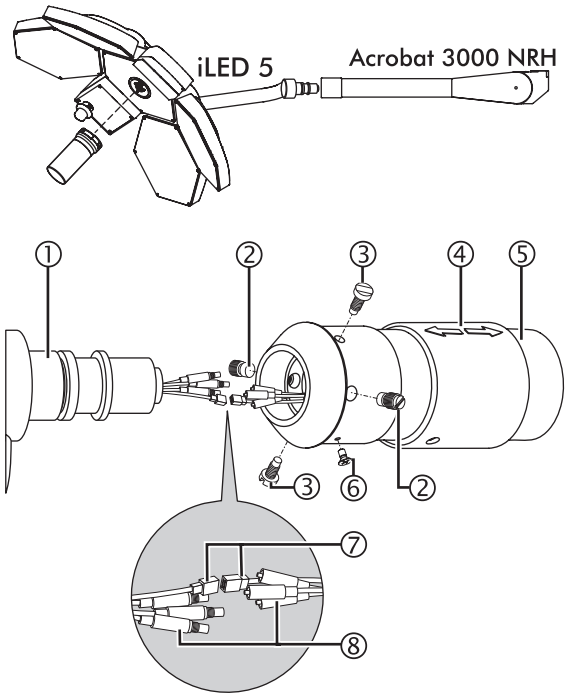
- Secure the light head ① with two end device securing screws ②.

8. Screw in two end device securing screws ②.
9. Screw in one brake screw ⑥.
10. Check that the light head ① is securely in place.
11. Adjust the spring arm as described in “Section 18”, page 68.

Mounting the counterweight for the camera:

12. Connect the counterweight for the camera as described in “Section 15.1”, page 48.

Figure 39



13.6 Installing the iLED 5 Light Head with Camera on the Acrobat 3000 LCH Spring Arm

The iLED 3 and iLED 5 light heads must be installed on spring arms with different tension. See "Section 4.1", page 16 **for which serial number goes with which.**

1. Carefully take out the sleeve securing screw ⑥ and slide the sleeve ④ backward.
2. Unscrew the two brake screws ②.

Connecting the plug:

3. Connect the six-pole plug ⑦.
4. Connect up the three threaded connectors ⑧ according to the color code.
5. Carefully push the six-pole plug ⑧ and threaded connectors ⑦ into the spring arm ⑤.

Installing the light head:

6. Precisely insert the light head ① axially into the spring arm ⑤.
7. Screw in two end device securing screws ③.
8. Screw in the two brake screws ②.

⚠ WARNING

Danger of the light head falling

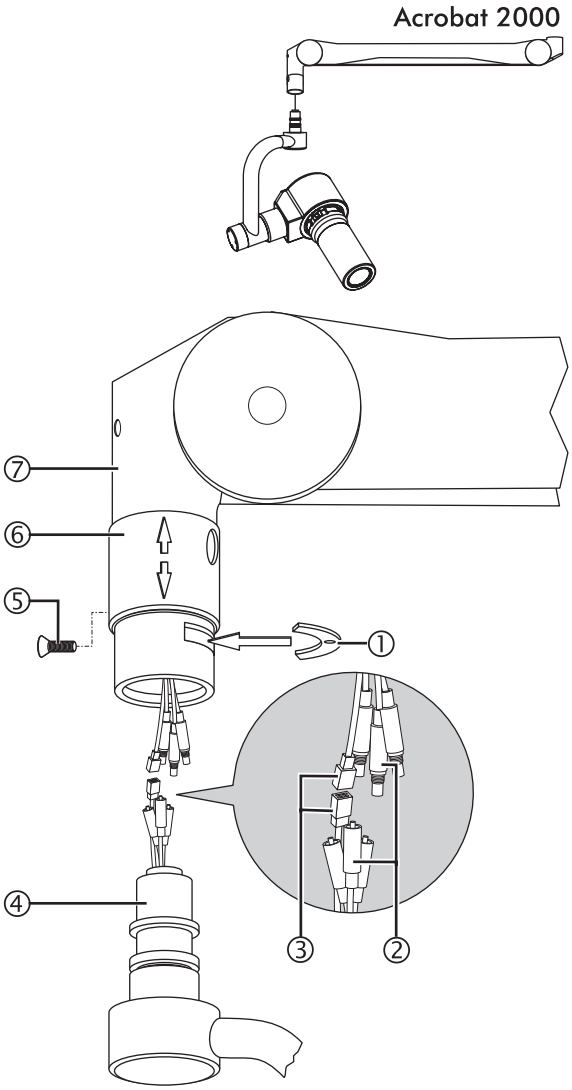
- Secure the sleeve ④ with the sleeve securing screw ⑥.

9. Carefully slide the sleeve ④ forward and screw in the sleeve securing screw ⑥.
10. Check that the light head ① is securely in place.
11. Adjust the spring arm as described in "Section 18", page 68.

Mounting the counterweight for the camera:

12. Connect the counterweight for the camera as described in "Section 15.1", page 48.

Figure 40



14.1 Installing Camera on Separate Pendant on the Acrobat 2000 Spring Arm

1. Unscrew the M3 x 8mm countersunk screw ⑤ and slide the sleeve ⑥ upward.
2. Screw the M3 x 8mm countersunk screw ⑤ back in to secure the sleeve ⑥.
3. Remove the locking segment ①.

Connecting the plug:

4. Connect up the three threaded connectors ② according to the color code.
5. Connect the six-pole plug ③.
6. Carefully push the threaded connector ②and the 6-pole plug ③ into the spring arm ⑦.

Installing the light head:

7. Precisely insert the camera yoke ④ axially into the spring arm ⑦.
8. Insert the locking segment ①, unscrew the M3 x 8mm countersunk screw ⑥ and slide the sleeve ⑥ downward.

⚠WARNING

Danger of the camera system falling

- Secure the sleeve ⑥ with an M3 x 8mm countersunk screw ⑤.

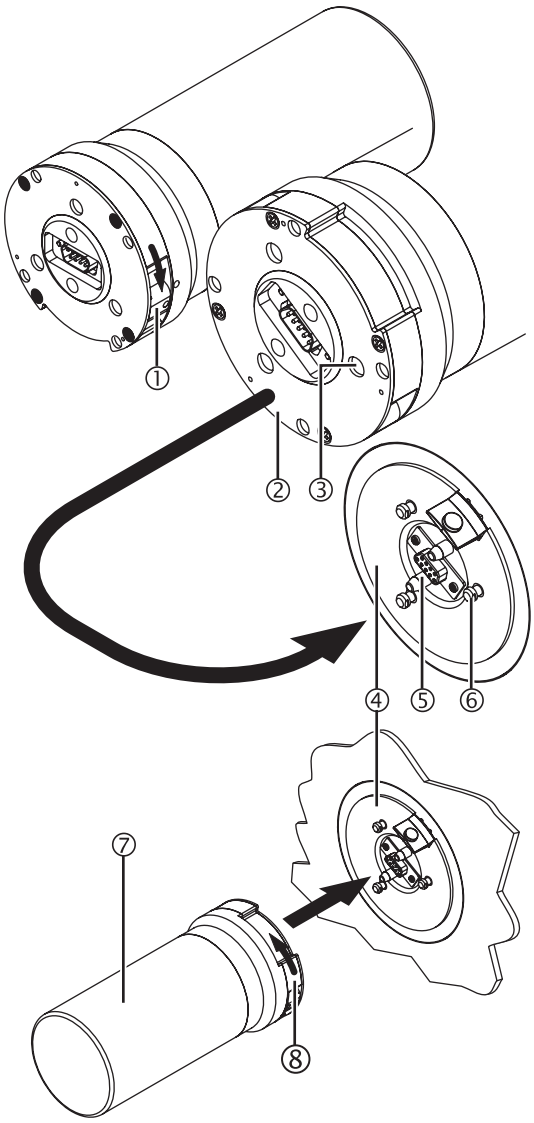
9. Screw in the M3 x 8mm countersunk screw ⑤.
10. Check that the camera ⑤ is securely in place.
11. Adjust the spring arm as described in “Section 18”, page 68.

Mounting the counterweight for the camera:

12. Connect the counterweight for the camera as described in “Section 15.1”, page 48.

15 Connecting/Disconnecting Counterweight

Figure 41

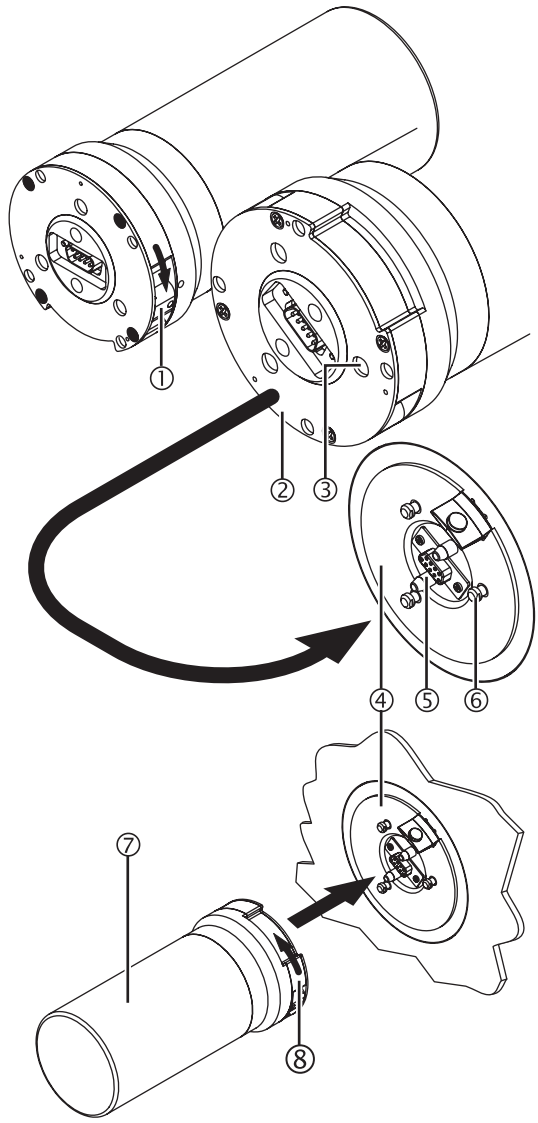


15.1 Connecting the Counterweight

The spring arm counterbalances the weight of the light head with camera or camera on a separate pendant, to keep the camera still wherever it is positioned. To counterbalance the changed weight ratios when the camera is taken off, a counterweight must be connected.

1. Slide the bayonet locking device into position ① to free up the three holes ③ in the base plate ②.
2. Align the counterweight ⑦ in such a way that the three bayonet pins ⑥ and the two centring pins ⑤ of the camera mount ④ line up with the holes ③ in the base plate ②.
   - The camera connectors will then also be correctly aligned.
3. Attach the counterweight ⑦ to the camera mount ④ and secure.
   Slide the bayonet locking device to position ⑧.
   - Line up the two red marks.
4. Check that the counterweight ⑦ is securely in place.

Figure 42



15.2 Disconnecting the Counterweight

1. Slide the bayonet locking device into position ① to free up the three holes ③ in the base plate ②.

⚠CAUTION

The light head moves upward of its own accord

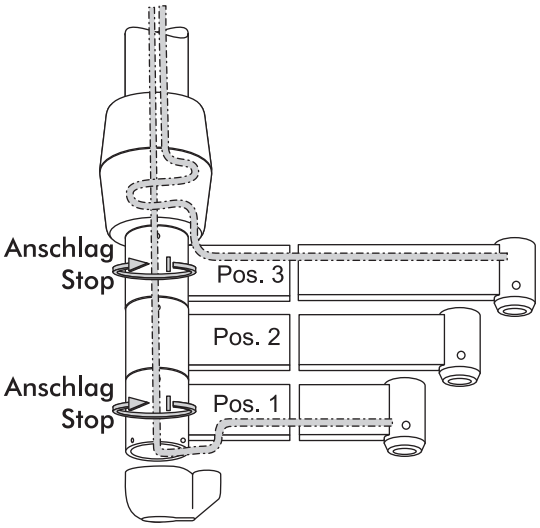
When taking off the counterweight ⑥ the light head may move upward of its own accord:

- Hold onto the light head when taking off the counterweight ⑥.
- Then raise the light head slowly and release it.

2. Hold onto the light head and take the counterweight ⑦ off the light head.
3. Raise the light head slowly and release it.

16 Installing the vidiaPORT Monitor Attachments

Figure 43



16.1 Special features

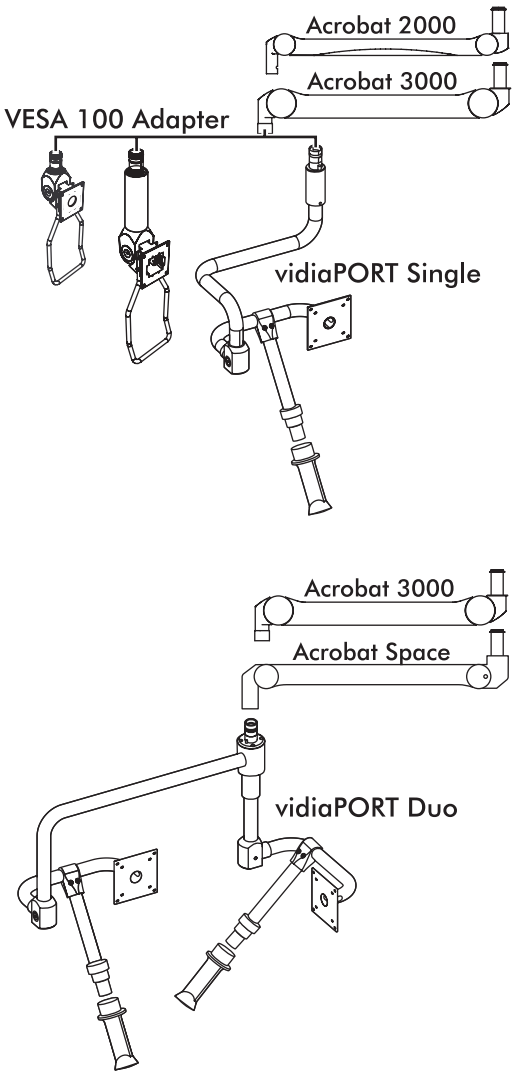
Cable routing:

When installing the vidiaPORT monitor attachments the cables for the monitor must be routed through the pendant system (spring arm, extension arm and ceiling tube).
The vidiaPORT monitor attachments must only be installed in the lowest and/or highest extension arm position (Pos. 1 or Pos. 3 in the diagram).

Arm stop:

To prevent the cables from twisting, the extension arm positions 1 or 3 have an arm stop function, which limits the extension arm swivelling range to approx. 330 degrees.

Figure 44



16.2 vidiaPORT Versions

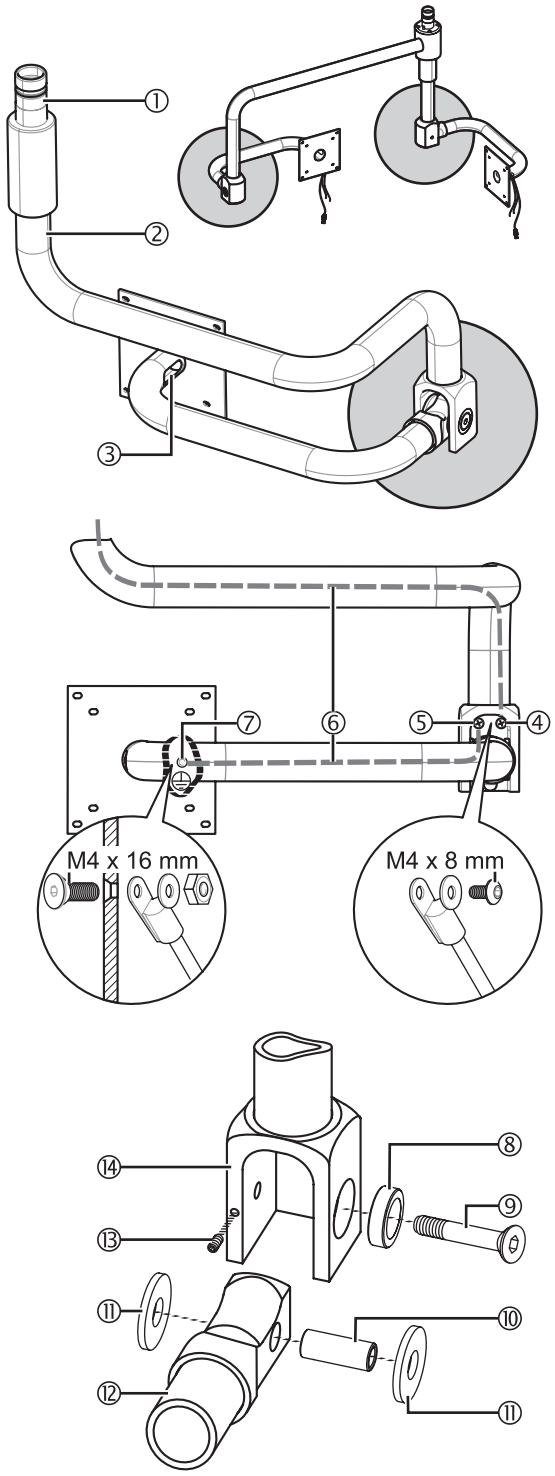
The different vidiaPORT versions can be mounted on different spring arms with different load capacities. Which spring arm the vidiaPORT version is installed on depends on the monitor weight and the diameter required to route the cables.

The following list shows you the features of the individual spring arms:

- Acrobat 2000:
  - Load capacity = up to max. 21 kg
  - Cable duct = max. 2 x 9 mm
  - Narrowest point in cross-section = 160 mm^2
- Acrobat 3000:
  - Load capacity = up to max. 30 kg
  - Cable duct = max. 1 x 9 mm + 1 x 6 mm + 2 x 5 mm
  - Narrowest point in cross-section = 384 mm^2
- Acrobat Space:
  - Load capacity = up to max. 40 kg
  - Cable duct = max. 2 x 12 mm + 2 x 6.5 mm
  - Narrowest point in cross-section = 450 mm^2

The cable duct can be further restricted by the vidiaPORT monitor adapter, the drill hole in the ceiling tube and the diameter of the duct in the central axis and must be checked in each case. "Figure 44", page 50 shows you the possible configurations of each vidiaPORT version on the respective spring arm.

Figure 45



16.3 Routing Cables through the vidiaPORT Monitor Adapter

To make it easier to route the power, data and potential equalization lines, the vidiaPORT monitor adapters Single and Duo can be removed at the swivel joint.

Removing the swivel joint:

1. Undo the M4 x 10 mm grub screw ⑬.
2. Hold onto the monitor carrier ⑫, unscrew the M8 x 45 mm countersunk screw ⑨ and remove the monitor carrier ⑫.

- Keep the M8 x 45 mm countersunk screw ⑨, pressure disk ⑧, two anti-friction disks ⑪ and sleeve ⑩ in a safe place.

Routing the cables:

The power, data and potential equalization lines used must comply with the currently applicable regulations for their specific application. See “Section 16.2”, page 50 for the maximum cable duct sizes.

⚠ WARNING

Electric shock – danger

If the 230 V (120 V) power lines are damaged, the iLED lighting system is live:

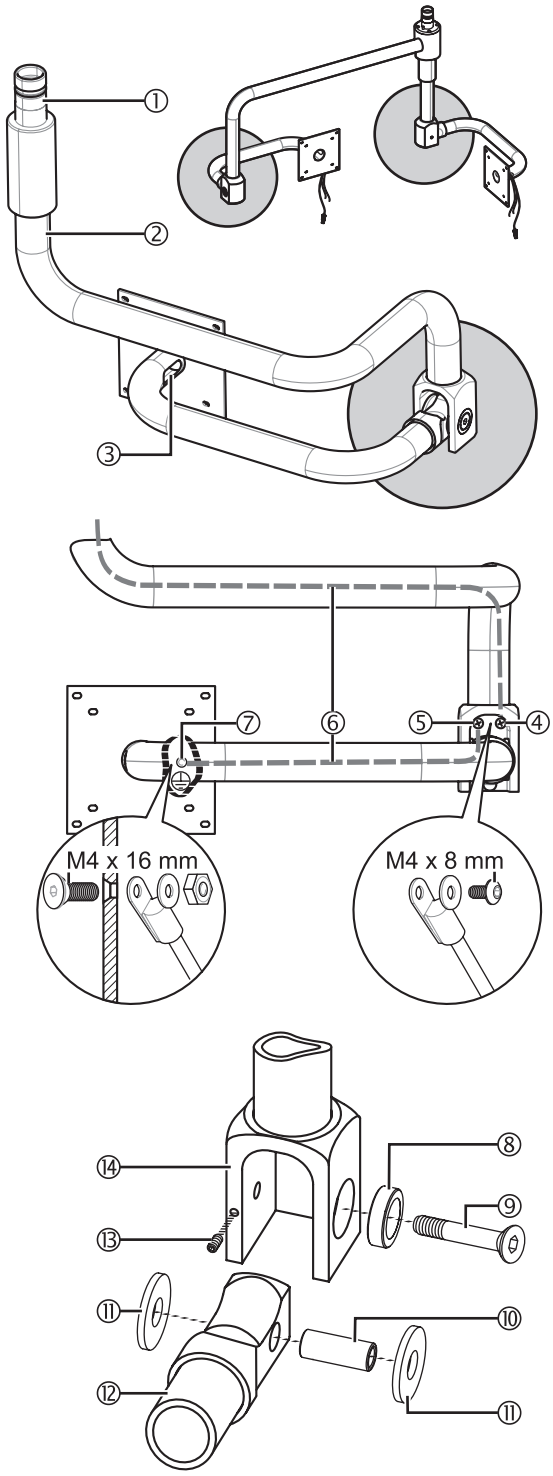
- At the swivel joint, all cables must be laid in the spiral wrap supplied.
- Route in the power lines without twisting or kinking them,
- Do not damage the cable insulation.

3. Cut the two potential equalization lines ⑥ 3.5 mm² (not included in scope of supply) to length and fit with ground shoes:

- **Cable 1**: from the grounding point of the spring arm to the connection point ④.
- **Cable 2**: from connection point ⑤ to connection point ⑦.

4. Lay and connect the potential equalization lines ⑥ according to “Figure 45”, page 51.
5. Check that the potential equalization lines ⑥ are securely in place.
6. Continue installation as on next page.

Figure 46



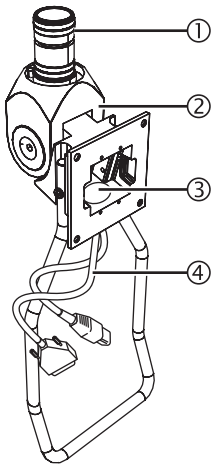
16.3 Cont'd

7. Route the power lines through the spigot ① and through the support tube ②.
8. Route the power lines through the monitor carrier ⑭ and out through the opening ③ in the side.
9. At the swivel joint, insert all the lines in the spiral wrap supplied.
10. Lay the spiral wrap with the lines in the swivel joint in such a way that the lines cannot fray or get pinched.

Installing the swivel joint:

11. Insert two anti-friction disks ⑪ into the side of the sleeve ⑩.
12. Insert the monitor carrier ⑭ into the support tube ②.
13. Put the pressure disk ⑧ on the M8 x 45 mm countersunk screw ⑨.
14. Slightly tighten the M8 x 45 mm countersunk screw ⑨.
15. Tighten the M4 x 10 mm grub screw ⑬ to prevent the M8 x 45 mm countersunk screw ⑨ from loosening.

Figure 47



16.4 Routing Cables through the VESA 100 Adapter

⚠ WARNING

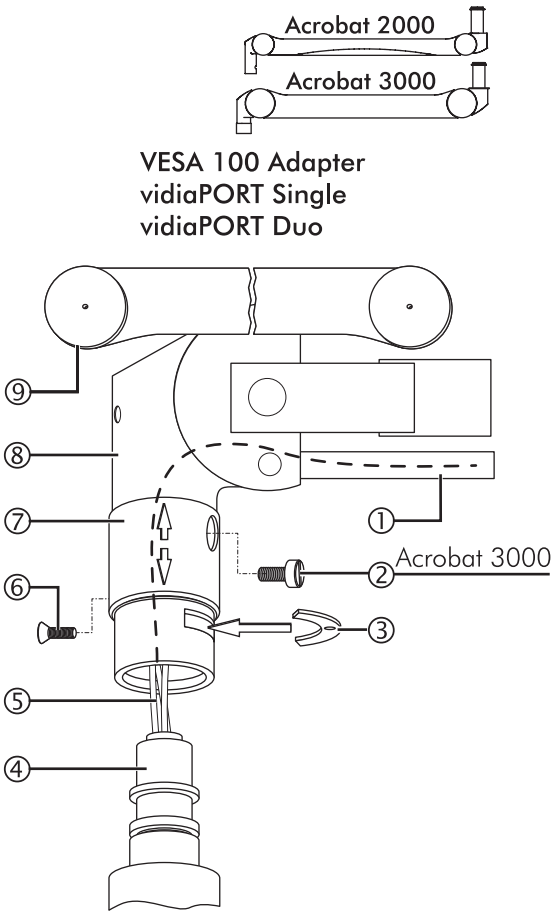
Electric shock – danger

If the 230 V (120 V) power lines are damaged, the iLED lighting system is live:

- Route in the power lines without twisting or kinking them,
- Do not damage the cable insulation.

1. From below, route the power lines ④ through the installation hole ③ into the Vesa 100 adapter ②.
2. Route the power lines ④ out through the spigot ① of the Vesa 100 adapter ②.

Figure 48



16.5 Installing the vidiaPORT Monitor Adapter on the Acrobat 2000/3000 Spring Arm

1. **Only Acrobat 3000 spring arm:** Unscrew the M10 x 8.6 mm slotted brake screw ②.
2. Unscrew the M3 x 8 mm countersunk screw ⑥ and slide the sleeve ⑦ upward.
3. Screw the M3 x 8 mm countersunk screw ⑥ back in again to secure the sleeve ⑧.
4. Remove the locking segment ③.

Laying the power lines:

⚠ WARNING

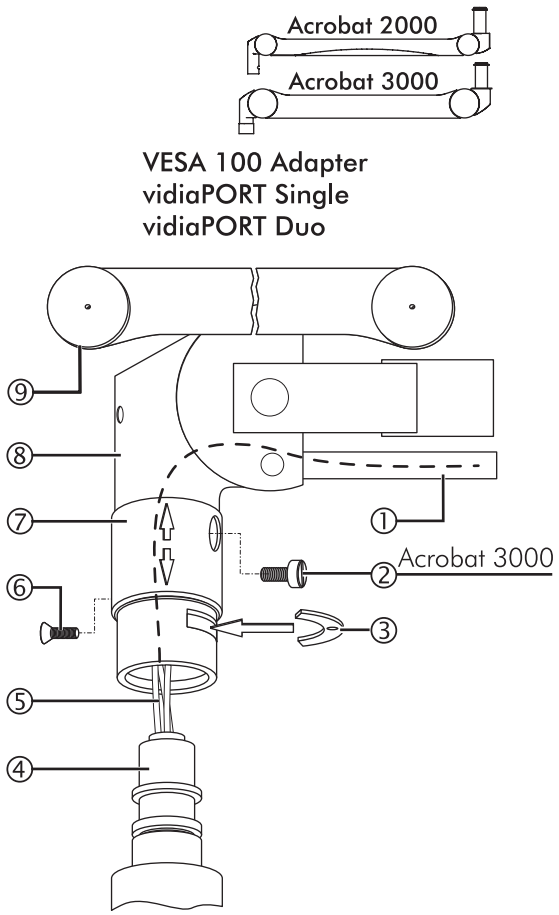
Electric shock – danger

If the 230 V (120 V) power lines are damaged, the iLED lighting system is live:

- Route in the power lines without twisting or kinking them,
- Do not damage the cable insulation.

5. Route the power lines ⑤ through the spring arm attachment to the parallel guide ① according to “Figure 49”, page 54.
6. Cont'd on next page.

Figure 49



16.5 Cont'd

7. Precisely insert the vidiaPORT monitor adapter ④ axially into the spring arm ⑧.

⚠WARNING

Danger of the vidiaPORT monitor adapter falling

- If the wrong locking segment ③ is fitted, the vidiaPORT monitor adapter ④ may fall.
- Only use an original locking segment ③ for the spring arm in question.

8. Insert the locking segment ③, unscrew the M3 x 8 mm countersunk screw ⑥ and slide the sleeve ⑦ downward.

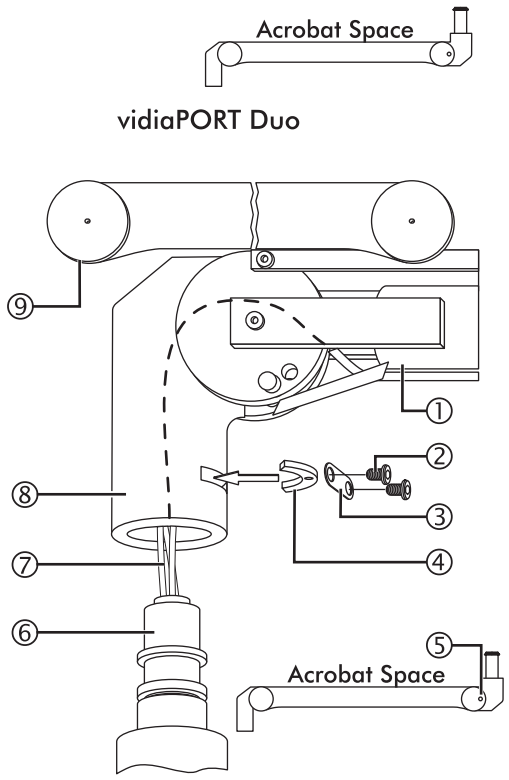
⚠WARNING

Danger of the vidiaPORT monitor adapter falling

Secure the sleeve ⑦ with an M3 x 8 mm countersunk screw ⑥.

9. Screw in the M3 x 8 mm countersunk screw ⑥.
10. **Only Acrobat 3000 spring arm:** screw in the M10 x 8.6 mm slotted brake screw ②.
11. Check that the vidiaPORT monitor adapter ④ is securely in place.
12. Secure the power lines ⑤ in the parallel guide ① of the spring arm using 5 cable ties.
13. Install the two cover panels ⑨.
14. Adjust the spring arm as described in "Section 18", page 68.

Figure 50



16.6 Installing the vidiaPORT Duo Monitor Attachment on the Acrobat Space Spring Arm

⚠ WARNING

Sudden release of the Acrobat Space spring arm

- If no monitor is mounted when the lock is disengaged, the spring arm will jump upward.
- Do not take out the locking pin ⑤ until the monitor is fully mounted.

1. Unscrew the two M4 Torx screws② and take off the spring plate ③.
2. Remove the locking segment ④.

Laying the power lines:

⚠ WARNING

Electric shock – danger

If the 230 V (120 V) power lines are damaged, the iLED lighting system is live:

- Route in the power lines without twisting or kinking them,
- Do not damage the cable insulation.

3. Route the power lines ⑦ through the spring arm attachment to the tube ① according to “Figure 50”, page 55.
4. Precisely insert the vidiaPORT monitor adapter ⑥ axially into the spring arm ⑧.

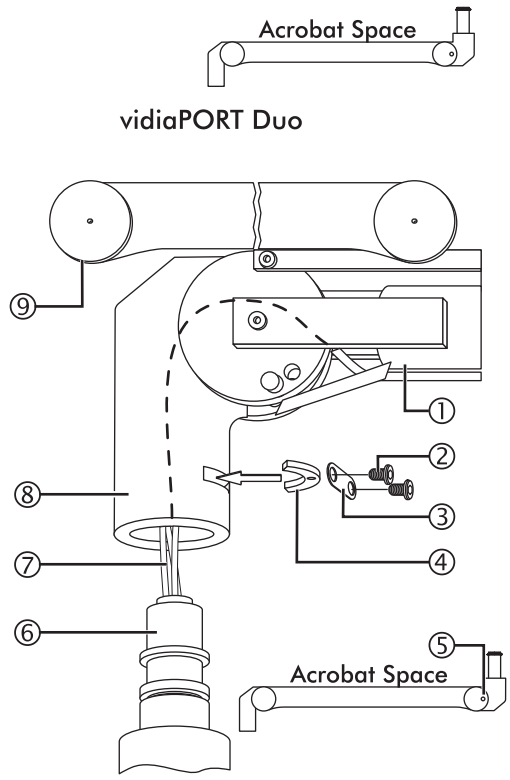
⚠ WARNING

Danger of the vidiaPORT monitor adapter falling

- If the wrong locking segment ④ is fitted, the vidiaPORT monitor adapter ⑥ may fall.
- Only use an original locking segment ④ for the spring arm in question.

5. Cont'd on next page.

Figure 51



16.6 Cont'd

6. Insert the locking segment ④.

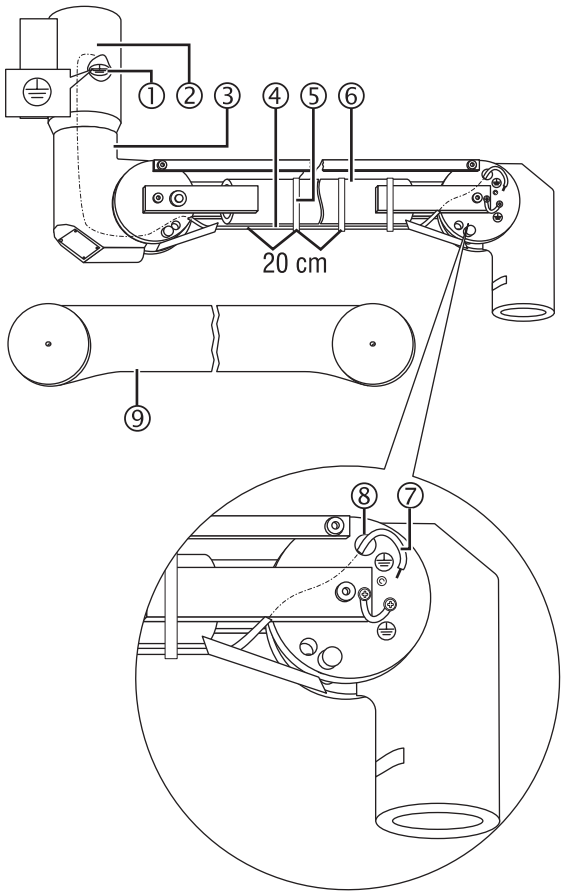
⚠ WARNING

Danger of the vidiaPORT monitor adapter falling

- Secure the locking segment ④ with the spring plate ③.

7. Position the spring plate ③ and tightly screw in 2 M4 Torx screws ②.
8. Check that the vidiaPORT monitor adapter ⑥ is securely in place.
9. Ground the Acrobat Space spring arm as described in “Section 16.7”, page 57.

Figure 52



16.7 Grounding the Acrobat Space Spring Arm

⚠ WARNING

Electric shock – danger

If the insulation is defective, the pendant system may be live:

- Ground the Acrobat Space spring arm.

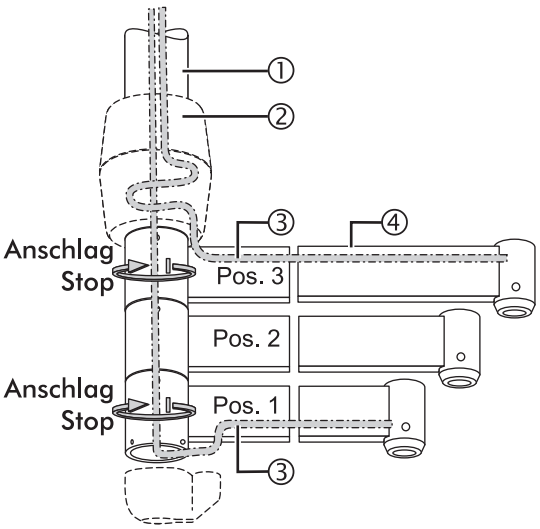
NOTE

Only for qualified staff

- Electrical connection may only be carried out by electricians.

1. Strip the supplied ground conductor 2.5 mm² ④ and connect to the grounding point ① in the extension arm ②.
2. Route the ground conductor 2.5 mm² ④ through the spring arm ③ and out the installation opening ⑧, cut to length, strip, and connect to the grounding point in the spring arm ⑦.
3. Secure the power lines and ground conductor 2.5 mm² ④ on the underside of the tube ⑥ at intervals of 20 cm using cable ties ⑤.
4. Do not install the cover panels ⑨ until adjustments have been completed.

Figure 53



16.8 Routing in Cables

⚠ WARNING

Electric shock – danger

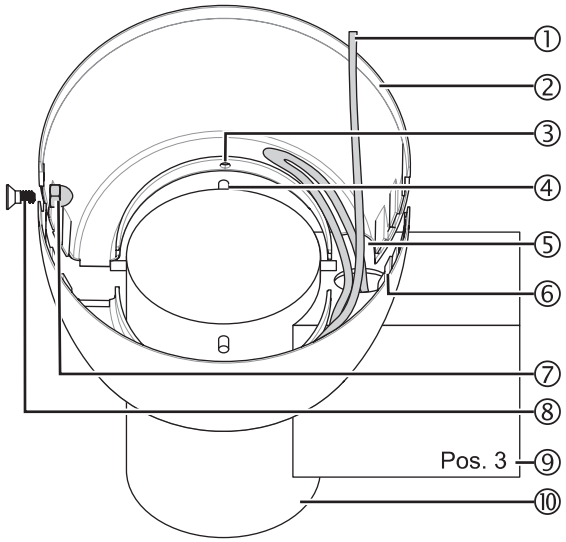
If the 230 V (120 V) power lines are damaged, the iLED lighting system is live:

- Route in the power lines without twisting or kinking them,
- Do not damage the cable insulation.

1. Using a wire pull, route the power lines ③ through the extension arm ④ according to Figure 53.
2. Draw the power lines ③ out of the extension arm ② according to Figure 53.
- Position 1 on the underside of the extension arm,
- Position 3 on the top of the extension arm,
3. Route the power lines ③ through the ceiling tube ①.
- Make sure not to damage other power lines in the central axis.
4. Connect the power lines ③ according to circuit diagram #4024054.
5. Adjust the spring arm as described in “Section 18”, page 68.

16.9 Installing the Canopy

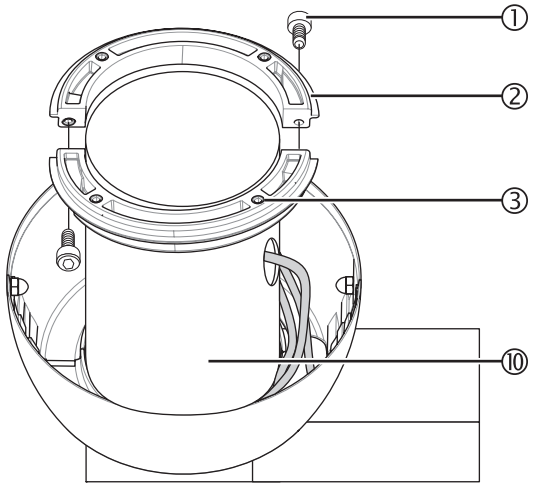
Figure 54



Installing lower canopy halves:

1. Place the two canopy halves ② on the uppermost extension arm ⑨ in such a way that:
- the power lines ① are located in the cut-outs ⑤,
- the 4 drill holes ③ in the canopy halves ② sit on the 4 pins ④ in the head of the extension arm ⑩.
2. Connect up the canopy halves ② with the clips ⑥.
3. Connect up the canopy halves ② using 2 M4 x 8 mm countersunk screws ⑧ and 2 M4 cap nuts ⑦.
- The rounded M4 cap nuts ⑦ must sit inside the canopy halves ② in such a way as not to damage the power lines ①.
4. Check that the canopy halves ② are securely in place.
5. Loop the power lines ① inside the canopy halves ② so that when swiveling the uppermost extension arm ⑨, the power lines ① are not subjected to tensile stress.
6. Check that the power lines ① can be swiveled.

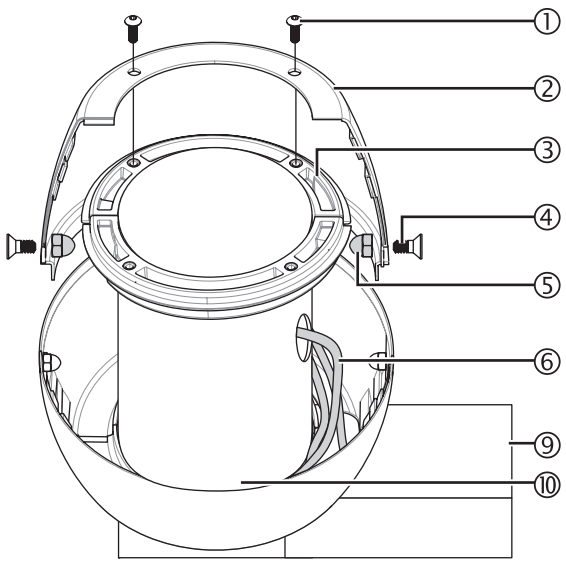
Figure 55



Installing the split ring:

7. Place the split ring ② around the ceiling tube ⑩ in such a way that the 4 thread inserts ③ face upward.
8. Screw the split ring ② together using 2 M5 x 12 mm socket head cap screws ①.
9. Tighten the two M5 x 12 mm socket head cap screws ① so that the split ring ② can barely be moved axially on the ceiling tube ⑩.

Figure 56

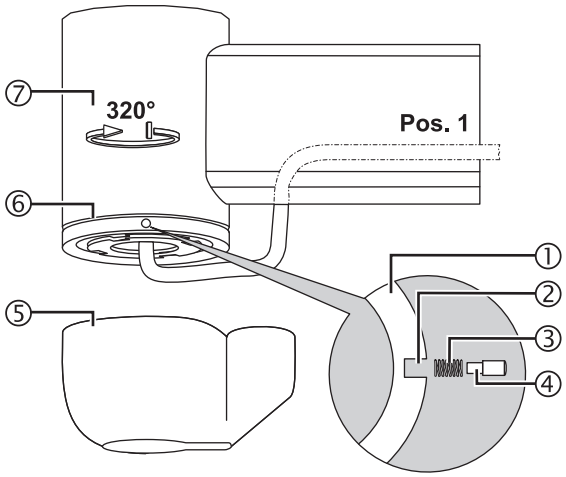


Install upper canopy halves:

10. Place the two canopy halves ② around the ceiling tube ⑩ and connect them up using 2 M4 x 8mm countersunk screws ④ and 2 M4 cap nuts ⑤.
- The rounded M4 cap nuts ⑤ must sit inside the canopy halves ② in such a way as not to damage the power lines ⑥.

11. Screw the upper canopy halves ② to the split ring ③ using 4 M5 x 10 mm round head cap screws ①.
12. Push the canopy halves ② down until the top and bottom canopy halves interlock.
13. Check function by swiveling the upper extension arm ⑨.
- The interlocking canopy halves must swivel smoothly and without resistance.

Figure 57



16.10 Installing the Ceiling Tube Cover

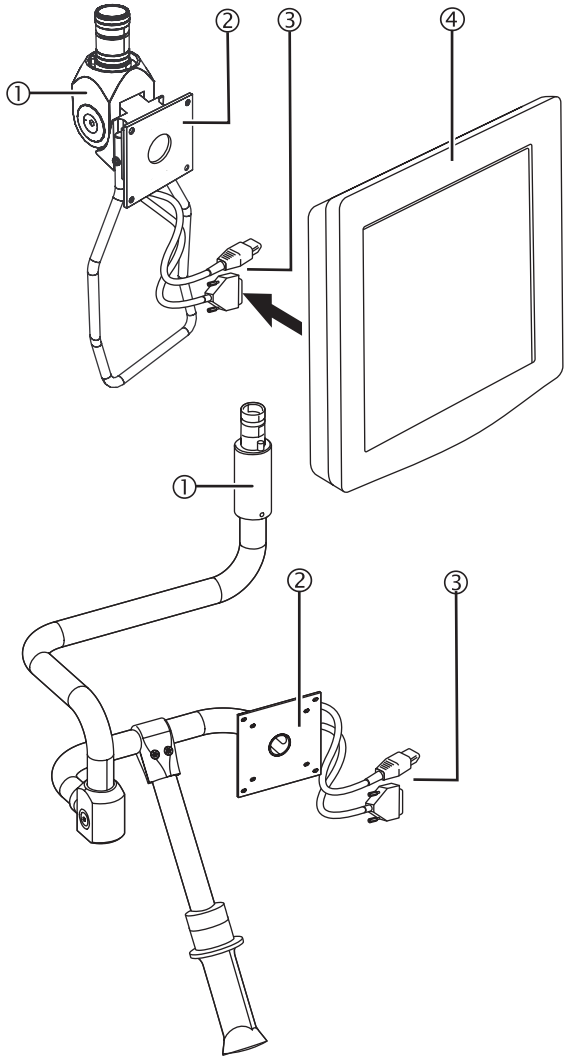
1. Place two springs ③ on the 2 pins ④.
2. Insert the two pins ④ into the drill holes ② in the extension arm ①.
3. Place the cover ⑤ on the two pins ④.
- The sealing lip in the cover ⑤ must sit in the groove ⑥ of the extension arm ①.

4. Check that the cover ⑤ is securely in place.

Removing the cover:

- To remove the cover ⑤, press it in at the point where the two pins ④ are located, and pull it down and off.

Figure 58



16.11 Installing the Flat-Screen Monitor

⚠ WARNING

Sudden release of spring arm

Sudden unloading can cause the spring arm to jump up and cause serious injury:

- Before installing the TFT monitor, move the spring arm to the highest position.

⚠ WARNING

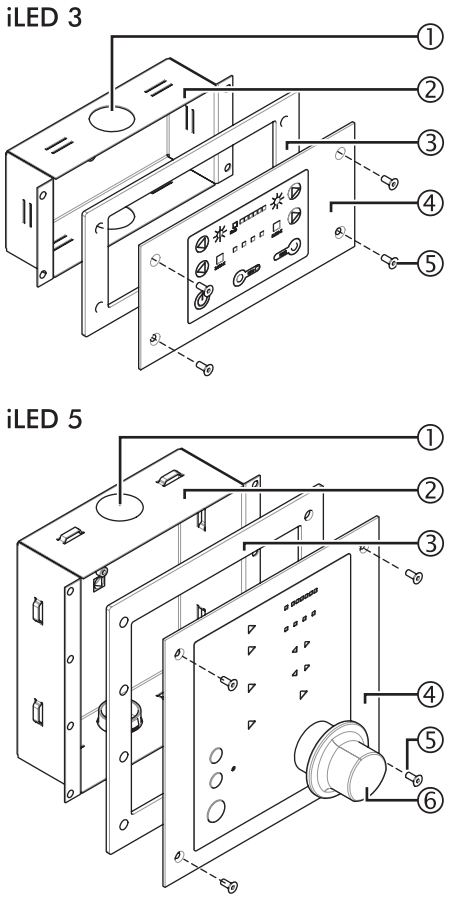
Danger of falling pendant system

- Do not exceed the maximum spring arm load capacity given in the technical data.

1. Mount the TFT monitor ④ according to the installation instructions from the monitor manufacturer on the VESA 100 interface plate ② of the vidiaPORT monitor adapter ①.
2. Check that the TFT monitor ④ is securely in place.
3. Connect the power lines ③ according to the installation instructions of the monitor manufacturer.
4. Carry out functional test.

17 Installing the Wall-Mounted Control Panel

Figure 59



17.1 Installing the Flush-Mounted Version of the Wall-Mounted Control Panel

There are different wall-mounted control panels for the iLED 3 and iLED 5 light heads. The wall-mounted control panel for the iLED 5 light head has an extra menu button ⑥.

Only where there is an external power supply:

To avoid installation problems, e.g. when drilling through fire walls, we recommend you install additional filter boards on the ceiling flange to connect the wall-mounted ceiling panels.

Choosing connecting cables:

1. Choose the connecting cables for the particular light head version under the following criteria.

Wall-mounted control panel connecting cable for iLED 5 light head:

The connections in the supplied connecting cable 2 x 2 x 0.5 mm², #4024903 (15 m in length) are as follows:

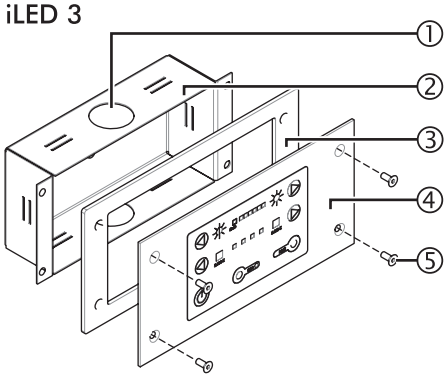
- 1 = white = + (VDC)
- 2 = brown = – (GND)
- 3 = green = ext A
- 4 = yellow = ext B
- Shield = PE (ground conductor symbol)

(see circuit diagram #4025854,)

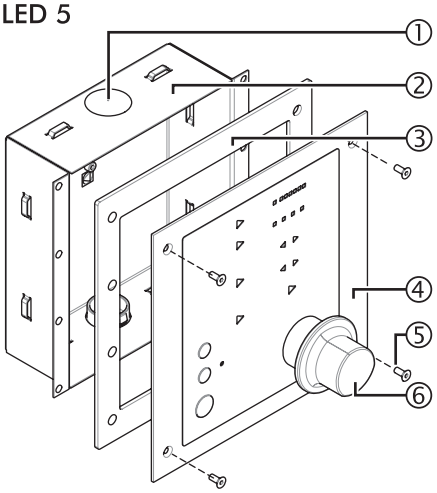
If other connecting cables are used, the color coding may be different. The connecting cable used must have at least 2 twisted cable pairs with a minimum cross section of 0.5 mm². The shield is connected to the ground conductor connection.

Figure 60

iLED 3



iLED 5



17.1 Cont'd

Wall-mounted control panel connecting cable for iLED 3 light head:

The connections in the supplied connecting cable 3 x 2 x 0.5 mm², #1425421 (15 m in length) are as follows:

- 1 = white = + (VDC)
- 2 = brown = – (GND)
- 3 = green = ext A
- 4 = yellow = ext B
- Shield = PE (ground conductor symbol)

The gray/pink pair is not assigned (see circuit diagram #4025857).

If other connecting cables are used, the color coding may be different. The connecting cable used must have at least 2 twisted cable pairs with a minimum cross section of 0.5 mm². The shield is connected to the ground conductor connection.

Wall-mounted connecting cable for iLED 3 light head on LCH spring arm:

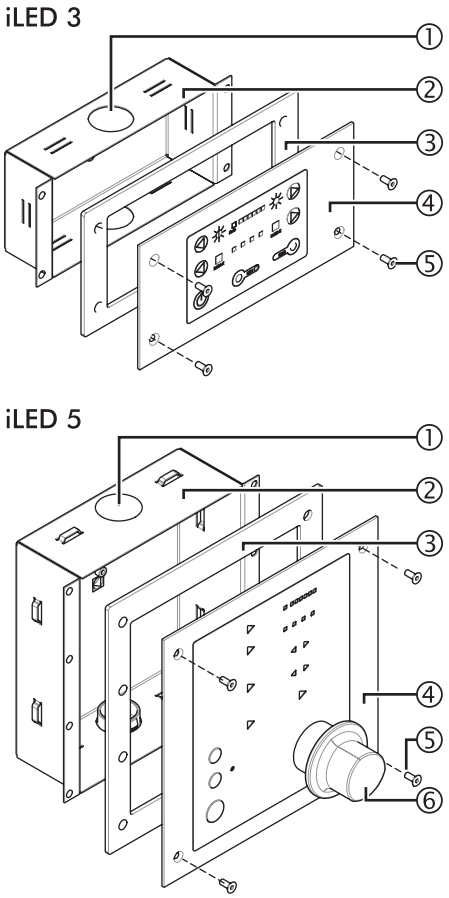
The connections in the supplied connecting cable 3 x 2 x 0.5 mm², #1425421 (15 m in length) are as follows:

- 1 = white = + (VDC)
- 2 = brown = – (GND)
- 3 = green = ext A
- 4 = yellow = ext B
- 5 = gray = int A
- 6 = pink = int B
- Shield = PE (ground conductor symbol)

(see circuit diagram #1431888,)

If other connecting cables are used, the color coding may be different. The connecting cable used must have at least 2 twisted cable pairs with a minimum cross section of 0.5 mm². The shield is connected to the ground conductor connection.

Figure 61



17.1 Cont'd

Preparing flush-mounted installation:

2. Route the connecting cables through one of the openings ① into the flush-mounted socket ②.
3. Install the flush-mounted socket ② in the wall recess and use suitable materal (e.g. plaster) to secure it in the recess:

• Allow the material (e.g. plaster) to set,

4. Check that the flush-mounted socket ② is securely in place.

Connecting the wall-mounted control panel:

iLED 3 only:

Insert the adapter cable plug (#1412088) into the board on the wall-mounted control panel. Connect the adapter cable (#40245192) to the plug and connect to the corresponding filter board in accordance with the circuit diagram (#4025857).

iLED 5 only:

Connect the wall-mounted control in accordance with the circuit diagram (#4025854).

5. Connect the connecting cables to the rear of the panel ④ in accordance with the circuit diagrams:

- iLED 3 #4025857,
- iLED 5 #4025854.

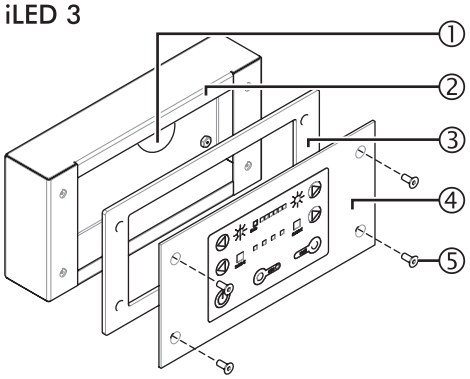
6. Make the ground connection in the center of the flush-mounted socket ②.
7. Relieve any strain on the connection cables in the flush-mounted socket ②.

Complete installation:

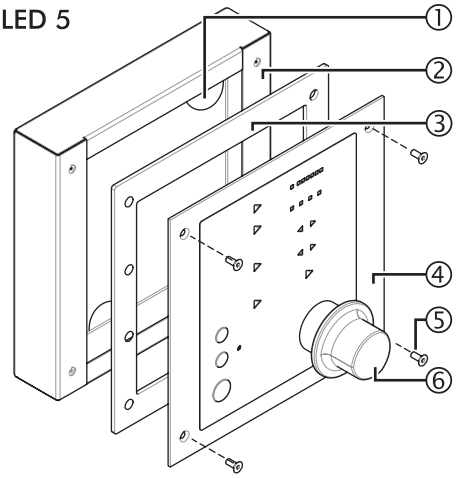
8. Position the seal ③ and control panel ④ and screw firmly in place using four M4 x 10 mm countersunk screws ⑤.
9. Check that the wall-mounted control panel is securely in place.
10. **iLED 5 only:** Fit menu button ⑥.
11. Carry out functional test.

Figure 62

iLED 3



iLED 5



17.2 Installing the Surface-Mounted Version of the Wall-Mounted Control Panel

There are different wall-mounted control panels for the iLED 3 and iLED 5 light heads. The wall-mounted control panel for the iLED 5 light head has an extra menu button ⑥.

Only where there is an external power supply:

To avoid installation problems, e. g. when drilling through fire walls, we recommend you install additional filter boards on the ceiling flange to connect the wall-mounted ceiling panels.

Choosing connecting cables:

1. Choose the connecting cables for the particular light head version under the following criteria.

Wall-mounted control panel connecting cable for iLED 5 light head:

The connections in the supplied connecting cable 2 x 2 x 0.5 mm², #4024903 (15 m in length) are as follows:

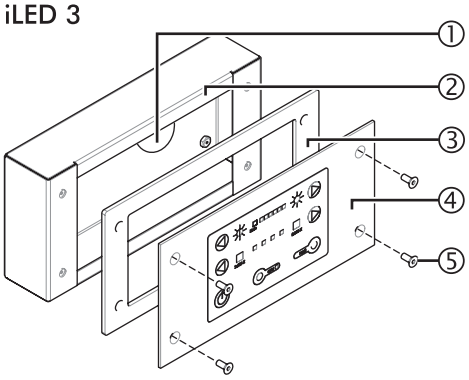
- 1 = white = + (VDC)
- 2 = brown = – (GND)
- 3 = green = ext A
- 4 = yellow = ext B
- Shield = PE (ground conductor symbol)

(see circuit diagram #4025854,)

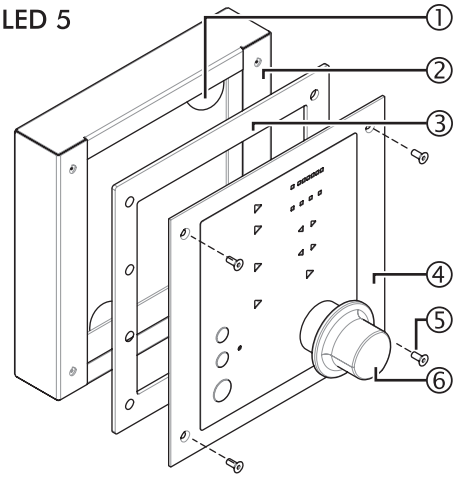
If other connecting cables are used, the color coding may be different. The connecting cable used must have at least 2 twisted cable pairs with a minimum cross section of 0.5 mm². The shield is connected to the ground conductor connection.

Figure 63

iLED 3



iLED 5



17.2 Cont'd

Wall-mounted control panel connecting cable for iLED 3 light head:

The connections in the supplied connecting cable 3 x 2 x 0.5mm², #1425421 (15m in length) are as follows:

- 1 = white = + (VDC)
- 2 = brown = – (GND)
- 3 = green = ext A
- 4 = yellow = ext B
- Shield = PE (ground conductor symbol)

The gray/pink pair is not assigned (see circuit diagram #4025857).

If other connecting cables are used, the color coding may be different. The connecting cable used must have at least 2 twisted cable pairs with a minimum cross section of 0.5mm². The shield is connected to the ground conductor connection.

Wall-mounted connecting cable for iLED 3 light head on LCH spring arm:

NOTE

Special feature of iLED 3 LCH light head:

The connections in the supplied connecting cable 3 x 2 x 0.5mm², #1425421 (15m in length) are as follows:

- 1 = white = + (VDC)
- 2 = brown = – (GND)
- 3 = green = ext A
- 4 = yellow = ext B
- 5 = gray = int A
- 6 = pink = int B
- Shield = PE (ground conductor symbol)

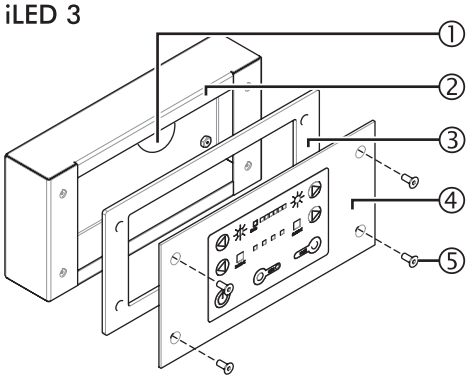
(see circuit diagram #1431888, #1431892 and #45409)

Jumpers A and B must be removed from terminal X204 (on the ceiling flange) (see “Section 7.2”, page 20).

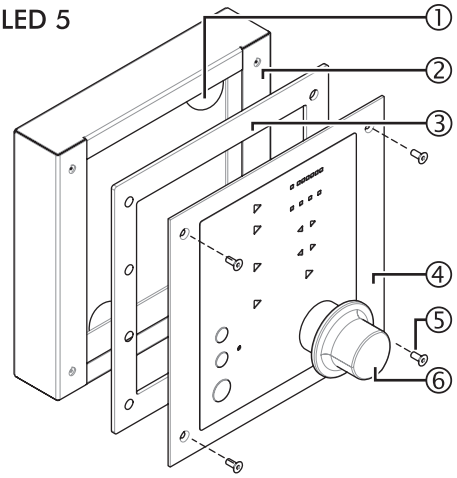
If other connecting cables are used, the color coding may be different. The connecting cable used must have at least 2 twisted cable pairs with a minimum cross section of 0.5mm². The shield is connected to the ground conductor connection.

Figure 64

iLED 3



iLED 5



17.2 Cont'd

Preparing surface-mounted installation:

2. Check to ensure that there are no other cables or pipes carrying electricity, gas or water below the surface where the unit is to be installed.
3. Drill four attachment holes in the wall for the surface-mounted socket ②.

Connecting the wall-mounted control panel:

iLED 3 only:

Insert the adapter cable plug (#1412088) into the board on the wall-mounted control panel. Connect the adapter cable (#40245192) to the plug and connect to the corresponding filter board in accordance with the circuit diagram (#4025857).

iLED 5 only:

Connect the wall-mounted control in accordance with the circuit diagram (#4025854).

4. Route the connecting cables through one of the openings ① into the surface-mounted socket ②.
5. Screw the surface-mounted socket ② to the wall using 4 fixing screws.

• Check that the surface-mounted socket ② is securely in place.

6. Connect the connecting cables to the rear of the panel ④ in accordance with the circuit diagrams:

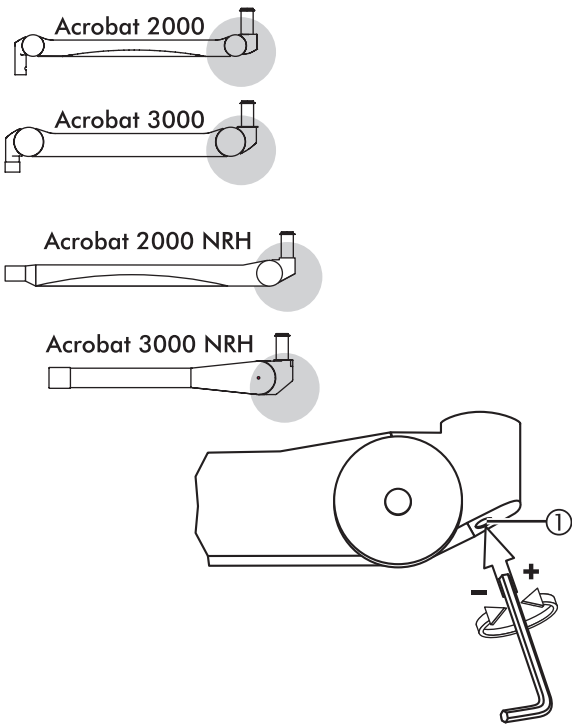
- iLED 3 #4025857,
- iLED 5 #4025854.

7. Make the ground connection in the center of the surface-mounted socket ②.
8. Relieve any strain on the connection cables in the surface-mounted socket ②.

Complete installation

9. Position the seal ③ and control panel ④ and screw firmly in place using four M4 x 10 mm countersunk screws ⑤.
10. Check that the wall-mounted control panel is securely in place.
11. **iLED 5 only:** Fit menu button ⑥.
12. Carry out functional test.

Figure 65



18.1 Adjusting Spring Force on the Acrobat 2000/3000 and Acrobat 2000/3000 LCH Spring Arms

The spring arm has a spring to counterbalance the weight of the light head. If the spring arm with light head does not stay where it is positioned, the spring force must be adjusted. Adjust the spring force so that the spring arm with light head stays where it is positioned.

1. Insert a size 5 hex head wrench into the hole provided ①.
- Move the spring arm into its uppermost position to relieve the pressure on it.

If the spring arm drops, the spring force is too low:

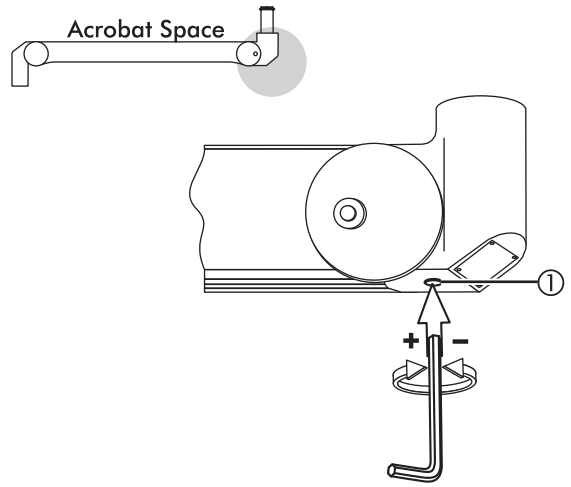
- Turn the size 5 hex head screw toward the + (counterclockwise).

If the spring arm rises, the spring force is too high:

- Turn the size 5 hex head screw toward the – (clockwise).

2. Carry out functional test.

Figure 66



18.2 Adjusting Spring Force on the Acrobat Space Spring Arm

The spring arm has a spring to counterbalance the weight of the light head. If the spring arm with light head does not stay where it is positioned, the spring force must be adjusted. Adjust the spring force so that the spring arm with light head stays where it is positioned.

1. Insert a size 5 hex head wrench into the hole provided ①.
- Move the spring arm into its uppermost position to relieve the pressure on it.

If the spring arm drops, the spring force is too low:

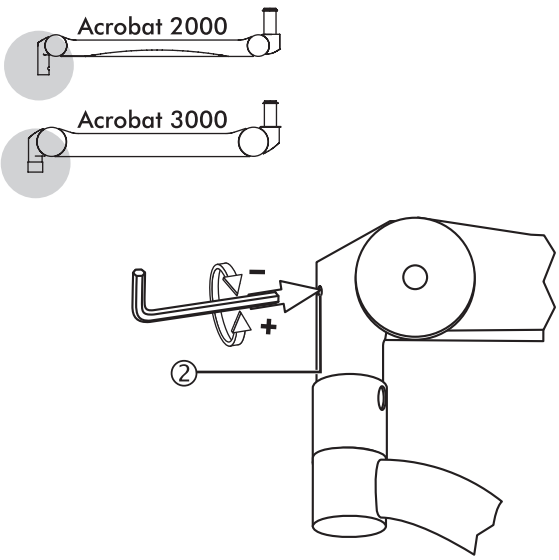
- Turn the size 5 hex head screw toward the + (counterclockwise).

If the spring arm rises, the spring force is too high:

- Turn the size 5 hex head screw toward the – (clockwise).

2. Carry out functional test.

Figure 67



18.3 Adjusting Height Stop on the Acrobat 2000/3000 Spring Arms

When the unit ships from the factory the spring arm's swivelling range in the horizontal plane is set by default. The swivelling range can be extended upward to approx. 45 degrees.

1. Insert a size 5 hex head wrench into the hole provided ①.
- Pull down the spring arm to take the pressure off the adjusting screw.

If you want to reduce the upward swivelling range:

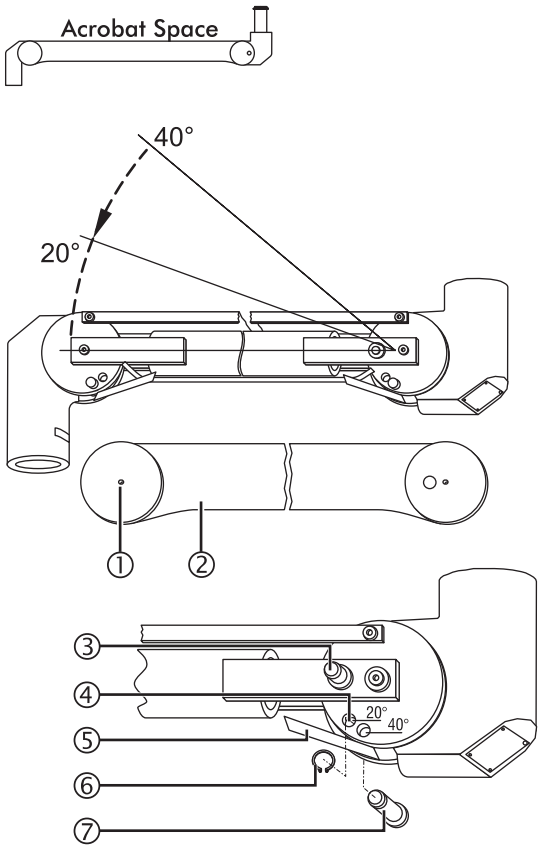
- Turn the size 5 hex head screw toward the – (clockwise).

If you want to extend the upward swivelling range:

- Turn the adjusting screw toward the + (counterclockwise).

2. Carry out functional test.

Figure 68



18.4 Adjusting Height Stop on the Acrobat Space Spring Arm

When the unit ships from the factory the spring arm's upward and downward swivelling range is set to 40 degrees. The upward swivelling range can be reduced to approx. 20 degrees.

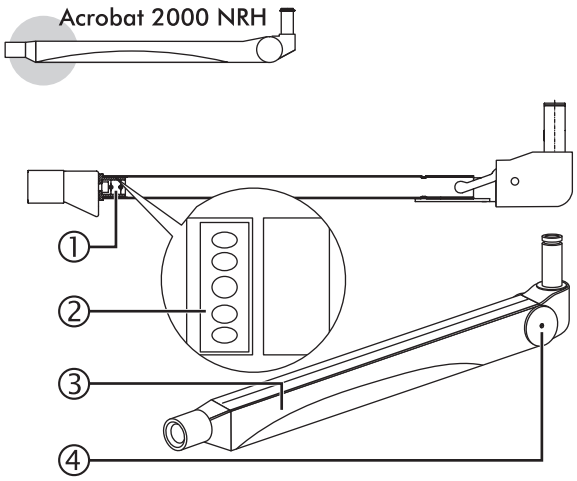
⚠ WARNING

Sudden release of the Acrobat Space spring arm

- Do not take out the locking pin ③ until the light head / monitor is fully mounted.

1. Pull out the locking pin ③.
2. Dismount the circlip ⑥ and remove the stop pin ⑦.
3. Insert the stop pin ⑦ into the hole (20°) ④ and secure with the circlip ⑥.
4. Check that the circlip ⑥ is securely in place.
5. Carry out functional test.
6. Insert the sealing flaps ⑤ into the guide rail of the cover panels ②.
7. Screw on the two cover panels ② with the four Phillips screws ①.
8. Check that the cover panels ② are securely in place.

Figure 69



18.5 Adjusting Height Stop on the Acrobat 2000 LCH Spring Arm

When the unit ships from the factory the spring arm's swivelling range in the horizontal plane is set by default. The swivelling range can be extended upward to approx. 35 degrees.

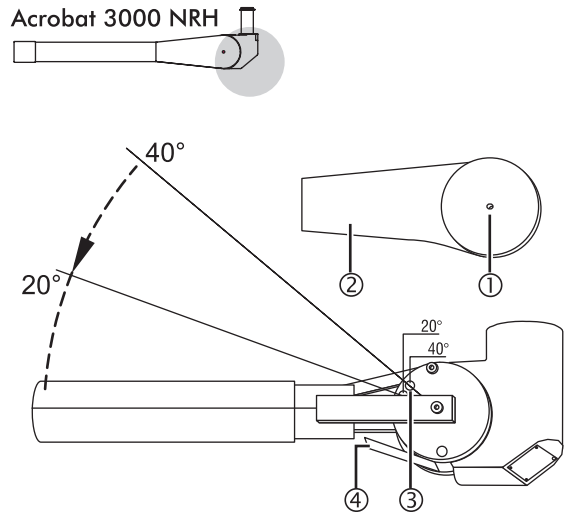
⚠ WARNING

Electric shock

- Isolate all poles of the iLED lighting system from the power supply at the mains.
- Ensure that the power supply cannot be switched back on.

1. Isolate all poles of the iLED lighting system from the power supply at the mains and ensure the power supply cannot be switched on again.
2. Undo the two Phillips screws ④ and remove the cover panels ③.
3. Adjust the adjusting nuts ② in the hole provided ① using the metal key.
4. Carry out functional test.
5. Position the cover panels ③ and screw in two Phillips screws ④.
6. Check that the cover panels ③ are securely in place.

Figure 70

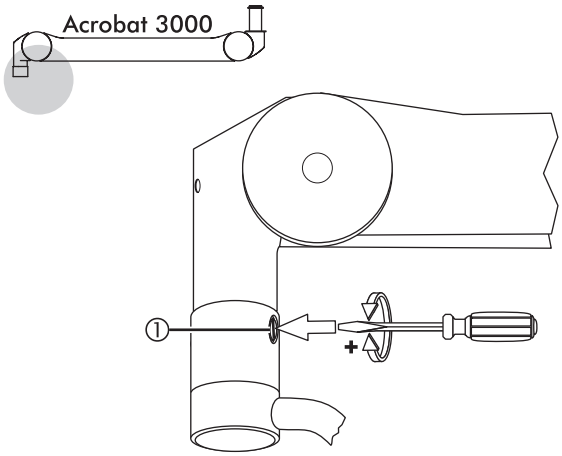


18.6 Adjusting Height Stop on the Acrobat 3000 LCH Spring Arm

When the unit ships from the factory the spring arm's upward and downward swivelling range is set to 40 degrees. The upward swivelling range can be reduced to approx. 20 degrees.

1. Screw the stop screw ③ on both sides of the spring arm out of the threaded hole ③ for the 40-degree stop.
2. Screw the stop screw ③ on both sides of the spring arm into the threaded hole for the 20-degree stop.
3. Carry out functional test.
4. Insert the sealing flaps ④ into the guide rail of the cover panels ②.
5. Screw on the two cover panels ② with the 2 Phillips screws ①.
6. Check that the cover panels ② are securely in place.

Figure 71



18.7 Adjusting Brake Force on the Acrobat 3000 Spring Arm

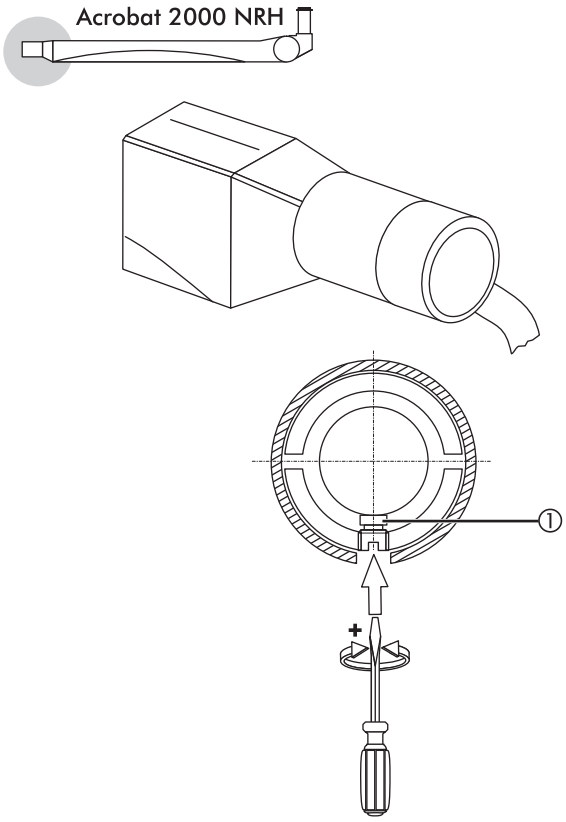
If the light head does not stay in position of its own accord, the brake force on the spring arm must be adjusted.

1. Turn the brake screw ① in the spring arm in the + direction with a suitable slot head screwdriver to increase the brake force.
2. Carry out functional test.

Brake screw used:

① Brake screw with slot
M10 x 1 – 9 mm [1x]
#1378868

Figure 72



18.8 Adjusting Brake Force on the Acrobat 2000 LCH Spring Arm

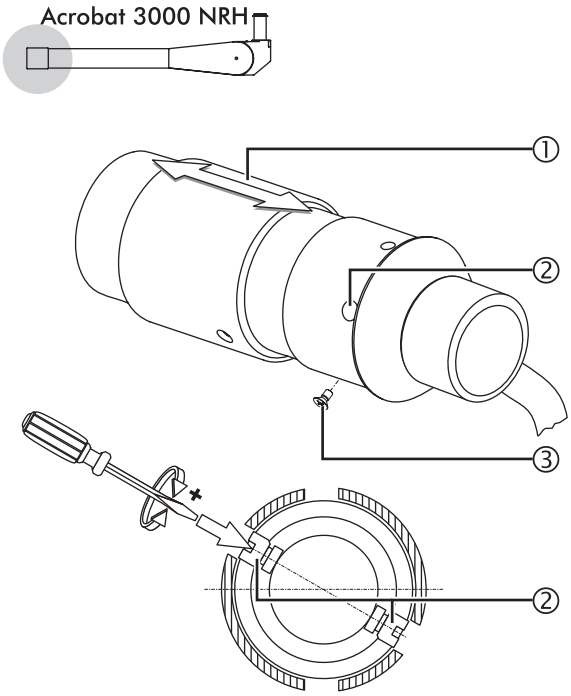
If the light head does not stay in position of its own accord, the brake force on the spring arm must be adjusted.

1. Turn the brake screw ① in the spring arm in the + direction with a suitable slot head screwdriver to increase the brake force.
2. Carry out functional test.

Brake screw used:

① Brake screw with slot:
M10 x 1 – 11 mm [1x]
#4025239

Figure 73



18.9 Adjusting Brake Force on the Acrobat 3000 LCH Spring Arm

If the light head does not stay in position of its own accord, the brake force on the spring arm must be adjusted.

1. Take out the sleeve securing screw ③ and slide the sleeve ① backward.
2. Turn the two brake screws ② in the spring arm in the + direction with a suitable slot head screwdriver to increase the brake force.
3. Carry out functional test.

⚠ WARNING

Danger of the light head falling

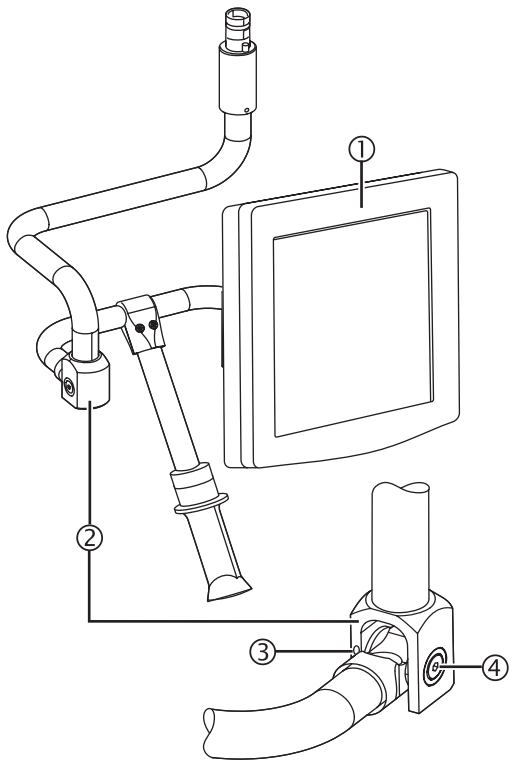
- Secure the sleeve ① with the sleeve securing screw ③.

4. Carefully slide the sleeve ① forward and screw in the sleeve securing screw ③.

Brake screw used:

② Brake screw with slot
M10 x 1– 11 mm [2x]
#4025239

Figure 74



18.10 Adjusting Brake Force on the vidiaPORT Monitor Adapter

The brake force for stabilizing the TFT monitor ① is adjusted at the joint ②.

1. Undo the M4 x 10 mm grub screw ③.

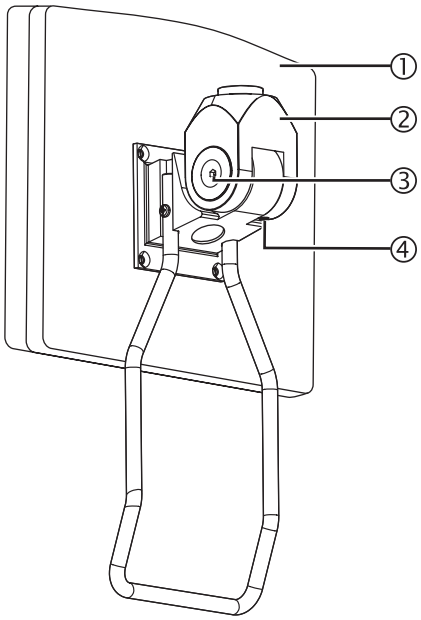
To increase the brake force:

2. Screw in the M4 x 10 mm hex head screw ④ in a clockwise direction and tighten to max. 20 Nm with a wrench.

To reduce the brake force:

3. Unscrew the M8 x 45 mm hex head screw ④ in a counterclockwise direction with a wrench.
4. Tighten the grub screw ③ to max. 4 Nm.

Figure 75



18.11 Adjusting Brake Force on the VESA 100 Adapter

The brake force for stabilizing the TFT monitor ① is adjusted at the joint ②.

1. Undo the M4 x 10 mm grub screw ④.

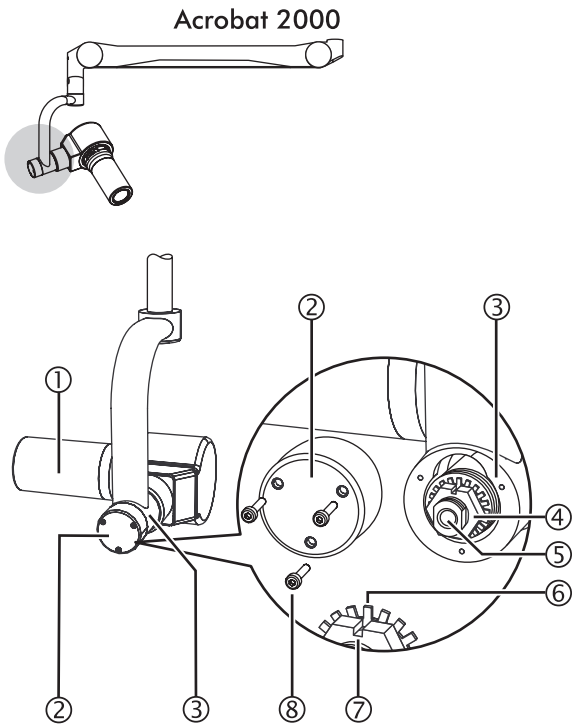
To increase the brake force:

2. Screw in the M8 x 45 mm hex head screw ③ in a clockwise direction and tighten to max. 20 Nm with a wrench.

To reduce the brake force:

3. Unscrew the M8 x 45 mm hex head screw ③ in a counterclockwise direction with a wrench.
4. Tighten the grub screw ④ to max. 4 Nm.

Figure 76



18.12 Adjusting Brake Force on the Camera Adapter of the Separate Camera

The brake force for stabilizing the camera ① is adjusted on the brake shaft in the housing ③ of the gimbal joint. It must only be adjusted when the camera is mounted (with sterile handle).

1. Undo the three screws ⑧ and remove the housing cover ②.
2. The adjusting screw ④ for the brake is locked with a serrated washer. Bend the tooth ⑥ out of the lock groove ⑦ to give you full access to the adjusting screw.

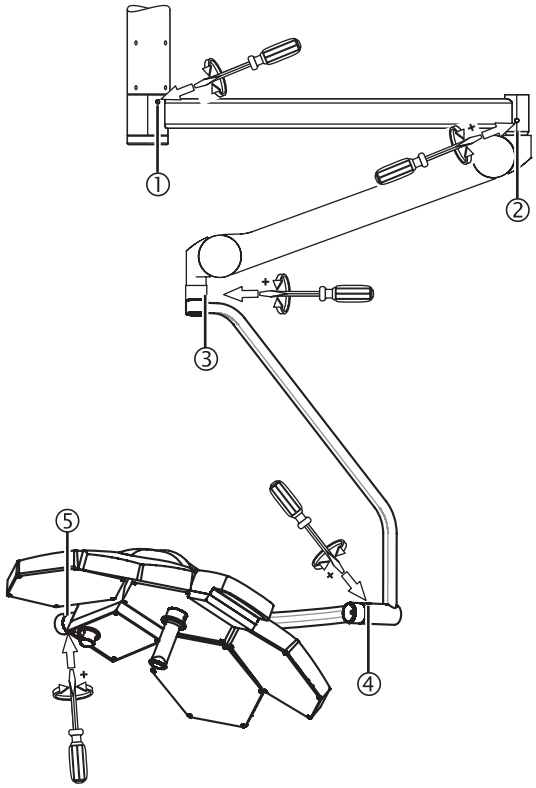
To increase the brake force:

3. Turn the adjusting screw ④ on the brake shaft ⑤ in a clockwise direction using a size 27 wrench.

To reduce the brake force:

4. Turn the adjusting screw ④ on the brake shaft ⑤ counterclockwise using a size 27 wrench.
5. Re-lock the adjusting screw ④, by bending a tooth of the serrated washer into the lock groove ⑦ (angle the tooth to the adjusting screw if this is your only option on account of the rotation position).
6. Put on the housing cover ② and fasten using the three screws ⑧.

Figure 77



18.13 Adjusting Brake Force on the iLED Lighting System

The brakes are set during installation. As with all mechanical parts, brakes are subject to wear and tear. If the light head no longer stays in position of its own accord, the brake force must be adjusted via the brake screws.

All brake screws are slotted screws. Adjust the brakes in the order ① - ④.

Brakes on the extension arm ① and spring arm ②:

- Turn the two brake screws on both the extension arm and spring arm in a clockwise direction with a suitable slot-head screwdriver to increase the brake force.

All other brakes ③- ⑤:

- Turn the three brake screws in a clockwise direction with a suitable slot-head screwdriver to increase the brake force.

Brake screws used:

① Brake screw with slot
M12 x 1 – 30 mm [2x]
#1378864

② Brake screw with slot (iLED 3)
M12 x 1 – 16 mm [2x]
#1378857

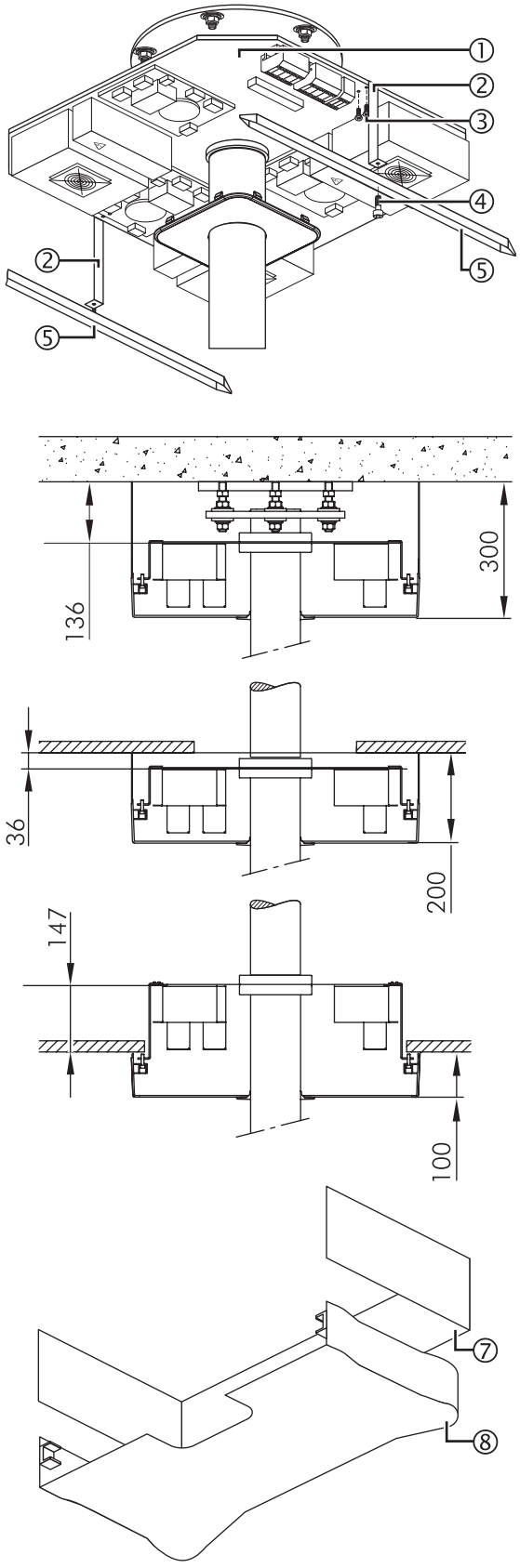
Brake screw with slot (iLED 5)
M12 x 1 – 21 mm [2x]
#1378866

③ Brake screw with slot (iLED 5)
M10 x 1 – 9 mm [1x]
#1378868

④ Brake screw with slot
M10 x 1 – 11 mm [2x]
#4025239

⑤ Brake screw with slot
(iLED 5 light head)
M10 x 1 – 15 mm [2x]
#4024587

Figure 78



19.1 Installing Brackets on the Interface Plate

If there is no interface plate fitted, then the bracket must be installed on the interface plate as described in "Section 19.2", page 77.

1. Screw two brackets ②, each with 2 M4 x 8 mm countersunk screws ③, to the interface plate ①.
2. Check that the two brackets ② are securely in place.

Installing the guide rails:

3. Screw two guide rails ⑤, each with 1 M6 x 30 mm socket head cap screw ④, to the brackets ②.

Fitting the attachment:

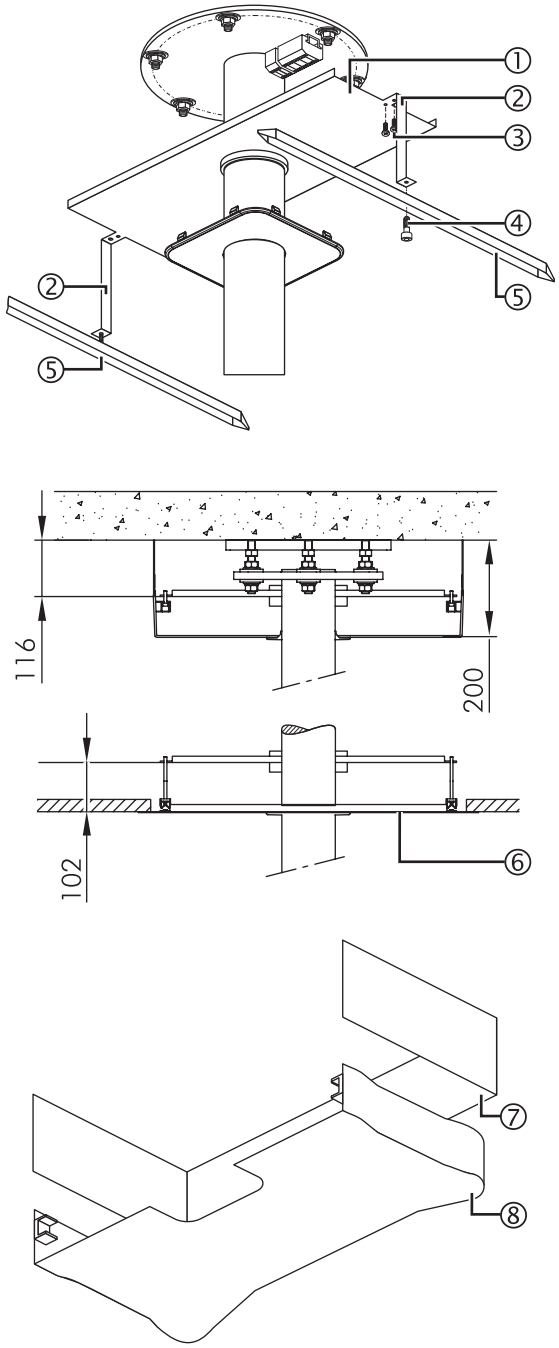
NOTE

Installation versions

- Depending on the installation version, for the 200 or 300 mm canopy ⑧ an attachment ⑦,
- or a ceiling screen ⑥ (see "Figure 79", page 77) must be installed.

4. Fit two optional extension sections ⑦ onto the two canopy halves ⑧.

Figure 79



19.2 Installing Brackets on the Canopy Retainer Plate

1. Screw two brackets ②, each with 2 M4 x 8 mm countersunk screws ③, to the interface plate ①.
2. Check that the two brackets ② are securely in place.

Installing the guide rails:

3. Screw two guide rails ⑤, each with 1 M6 x 30 mm socket head cap screw ④, to the brackets ②.

Fitting the attachment:

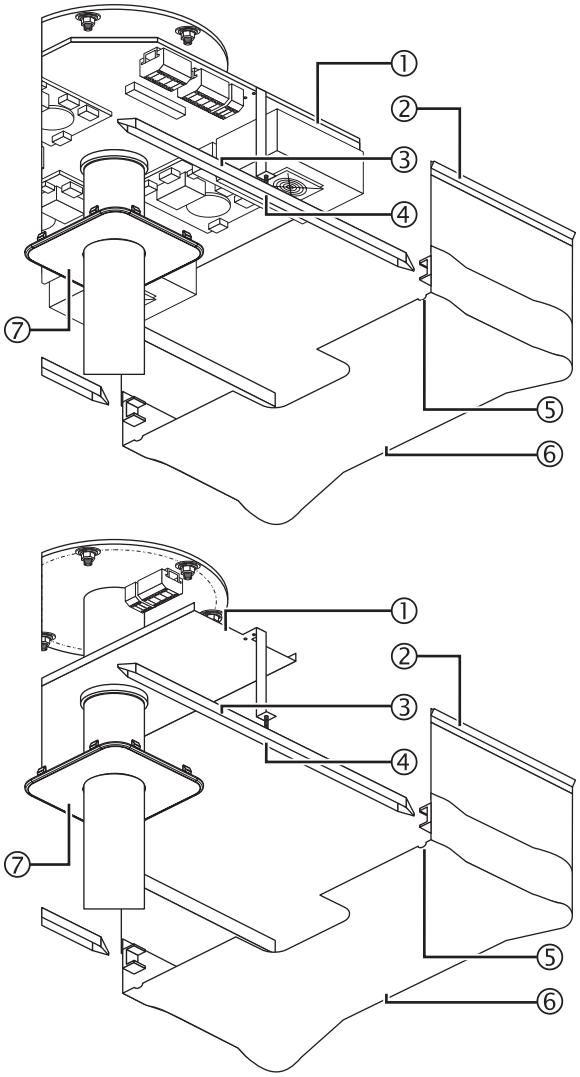
NOTE

Installation versions

- Depending on the installation version, for the 200 or 300 mm canopy ⑧ an attachment ⑦,
- or a ceiling screen ⑥ must be installed.

4. Fit two optional extension sections ⑦ onto the two canopy halves ⑧.

Figure 80



19.3 Installing the Canopy

1. Place the rubber seal ② on the two halves of the canopy ⑥ and cut to length.
2. Slide the first half section of the canopy ⑥ onto the guide rails ③ and move it to the center.
3. Slide the second half section of the canopy onto the guide rails ③ and move it to the center.
4. Tighten the two M6 x 30mm socket head cap screws ④ through the drill holes ⑤ until the canopy meets the ceiling.
5. Screw the two halves of the canopy ⑥ together.
6. Check that the canopy is securely in place.
7. Press the caps into the drill holes ⑤.
8. Push the canopy cover ⑦ into the half sections of the canopy ⑥.
9. Check that the canopy cover ⑦ is securely in place.

⚠ WARNING

Malfunction

Before the initial operation of the iLED lighting system, the electrical supply has to be checked and approved by qualified staff.

A functional check has to be performed after installation has been completed.

- The iLED lighting system must not be handed over to the customer until it has been tested.
- Handover must be documented in writing including confirmation by the customer.
- On handover, the customer must be instructed about the function, cleaning and care of the iLED lighting system.
- On handover, the customer must be instructed about the adjustments permitted according to the operating instructions supplied.
- An installation log can be supplied by Customer Service on request.

21 Technical Data

Lighting data	iLED 5	iLED 3
Ec illuminance at a distance of 1 m	max. 160,000 Lux*	max. 120,000 Lux*
Field size d_{10} at a distance of 1 m	22 - 30 cm**	22 - 30 cm***
Working distance	70 - 150 cm	70 - 150 cm
Light cylinder with homogeneous luminous field	79 cm	76 cm
Color temperature	3,500 - 5,000 K	3,500 - 5,000 K
Luminous efficacy of radiation	280 lm/W	280 lm/W
Total irradiance	485 W/m^2	365 W/m^2
General color rendering R_a	95	95
Percentage illuminance at max. dimming	approx. 40 percent	approx. 40 percent
Percentage illuminance with ENDO dimming	approx. 5 percent	approx. 5 percent
Average lamp service life	20.000 h	20.000 h
The lighting data is based on IEC 60601-2-41		
* The maximum illuminance can be up to 10 % below the maximum value due to variations in the production process.		
** d10 = 28 cm, d50 = 14 cm (130,000 Lux)		
*** d10 = 28 cm, d50 = 14 cm (60,000 Lux)		

Electrical data	iLED 5	iLED 3
Supply voltage	100 - 240 V AC ±10% 50-60 Hz	100 - 240 V AC ±10% 50-60 Hz
Light head rated output	184 W	111 W
Total power input	195 W	125 W

Mechanical Data	iLED 5	iLED 3
Light head diameter	850 mm	700 mm
Light head area	approx. 4200 cm^2	approx. 2833 cm
Maximum range of movement	2423 mm	2423 mm
Main lamp operating radius (center of light head)	1830 mm	1830 mm
Satellite operating radius (center of light head)	1980 mm	1980 mm
Height of area of movement	1130 mm	1130 mm

Rated loads	
iLED pendant system and vidiaPORT 2000: Acrobat 2000 Spring Arm Extension arm lengths 700/850/1000/ 1150 mm	21.0 kg
iLED pendant system and vidiaPORT 3000: Acrobat 3000 Spring Arm Extension arm lengths 700/850/1000/ 1150 mm	30.0 kg
iLED pendant system and vidiaPORT Space: Acrobat Space Spring Arm Extension arm lengths 700/850/1000 mm	40.0 kg
iLED pendant system and vidiaPORT Space: Acrobat Space Spring Arm Extension arm length 1150 mm	30.0 kg

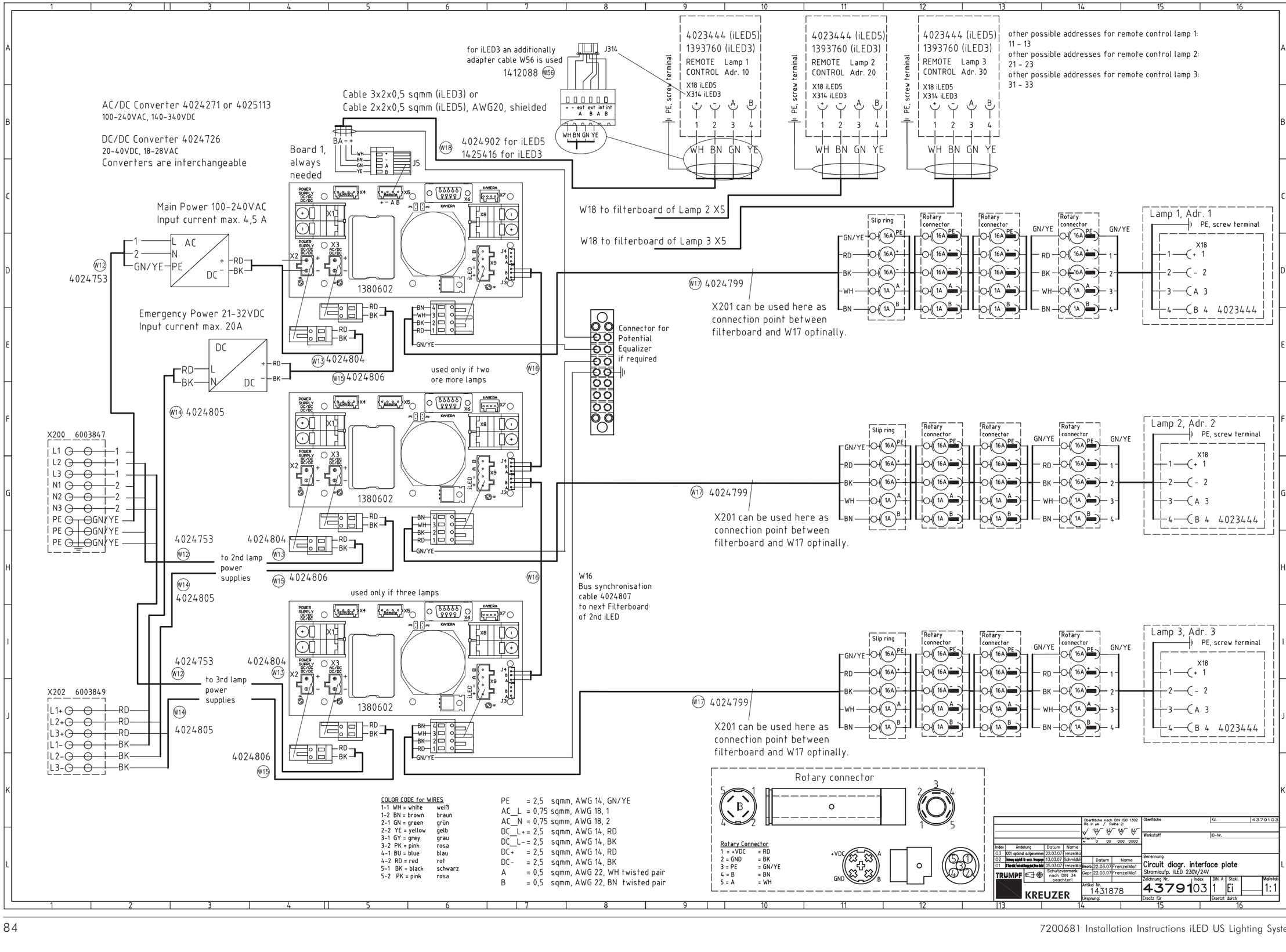
21 Technical Data

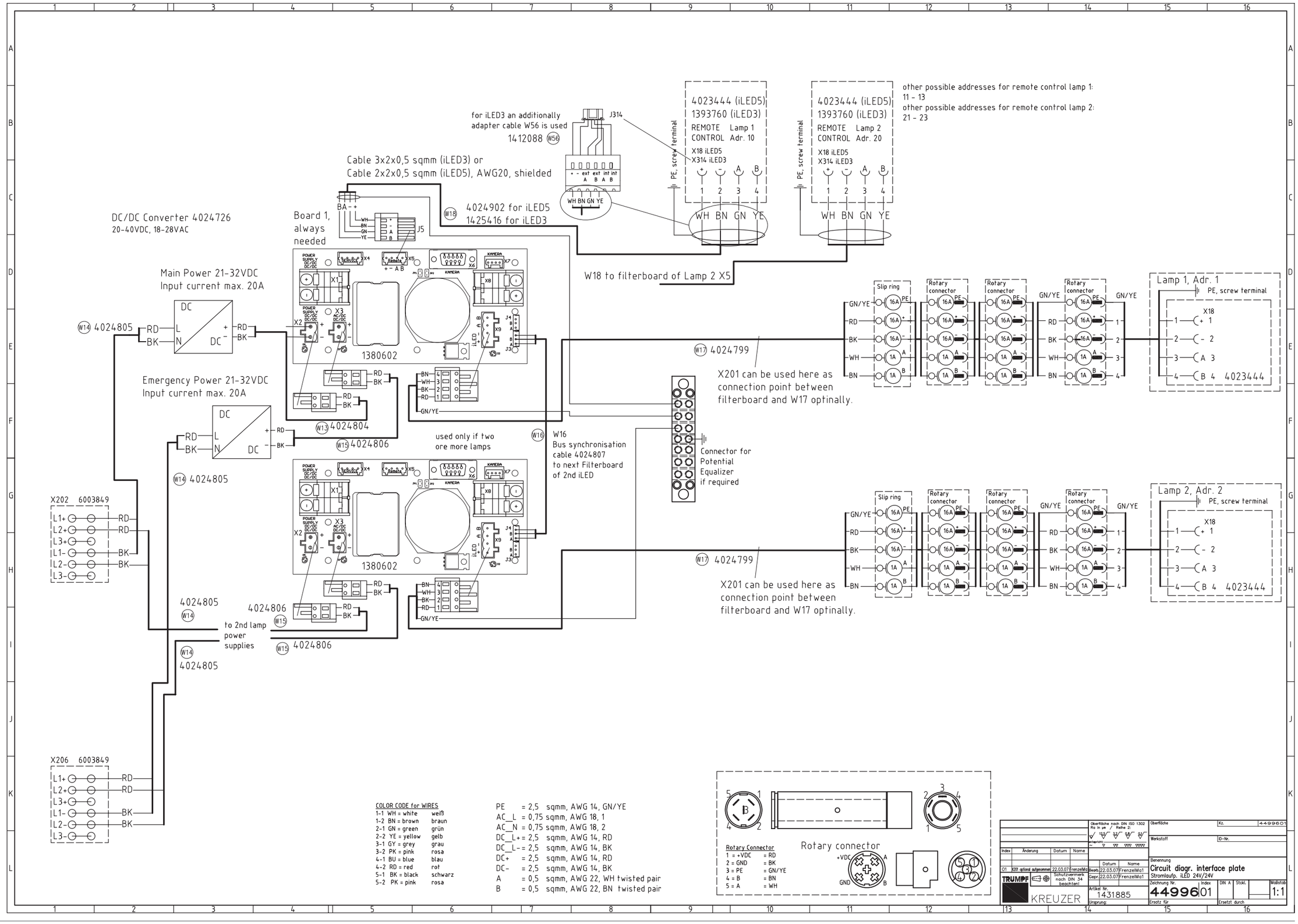
Camera module specifications	
Resolution	800,000 pixels (PAL), 680,000 pixels (NTSC)
Zoom	25x optical
Lens	f=2.4 mm (wide) to 60 mm (tele), F1.6 to F2.7
Signal-to-noise ratio	49 dB
Electric shutter NTSC	1/4 to 1/10,000s, 20 steps
Electric shutter PAL	1/3 to 1/10,000s, 20 steps
Horizontal resolution NTSC	470 TV lines
Horizontal resolution PAL	460 TV lines
Min. illuminance	3.0 lux (50 IRE)
Image stabilization	standard
White balance	automatic / manual
Motorized turn image function	> 360°
Still	digital
Auto Exposure (AE)	spot / integral
Focusing	automatic / manual
Amplifier	automatic / manual (-3 to 28 dB, 16 steps)

I/O connector controller
EtroLink™ Interface
Digital I/O
RS-485 PTZ camera control
Audio Input and Output
10/100 Mbps Ethernet Port

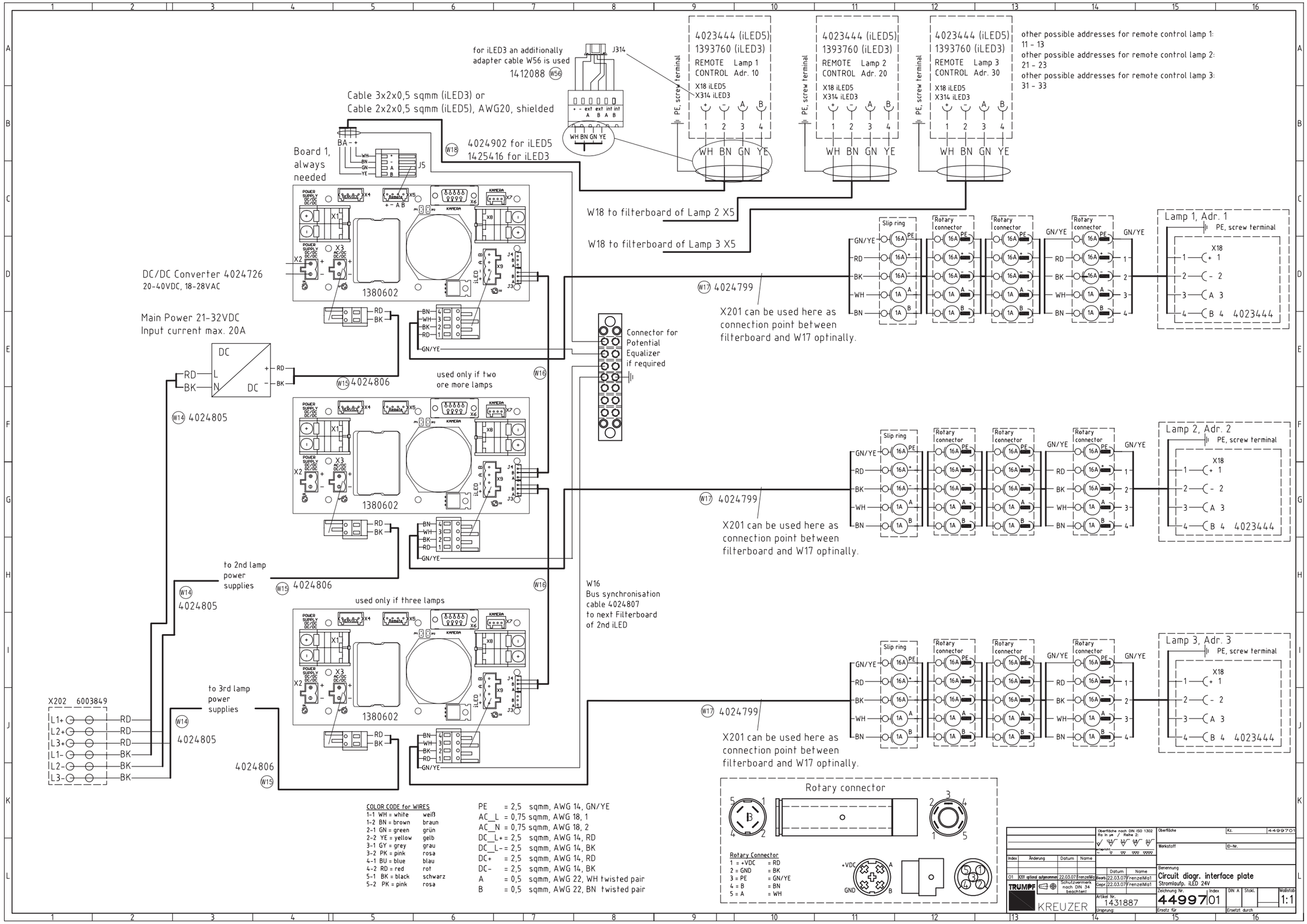
Classification	iLED 5	iLED 3
Protection class	I	I
Mode of operation	Continuous operation	Continuous operation
As per Council Directive 93/42/EEC	Class I	Class I

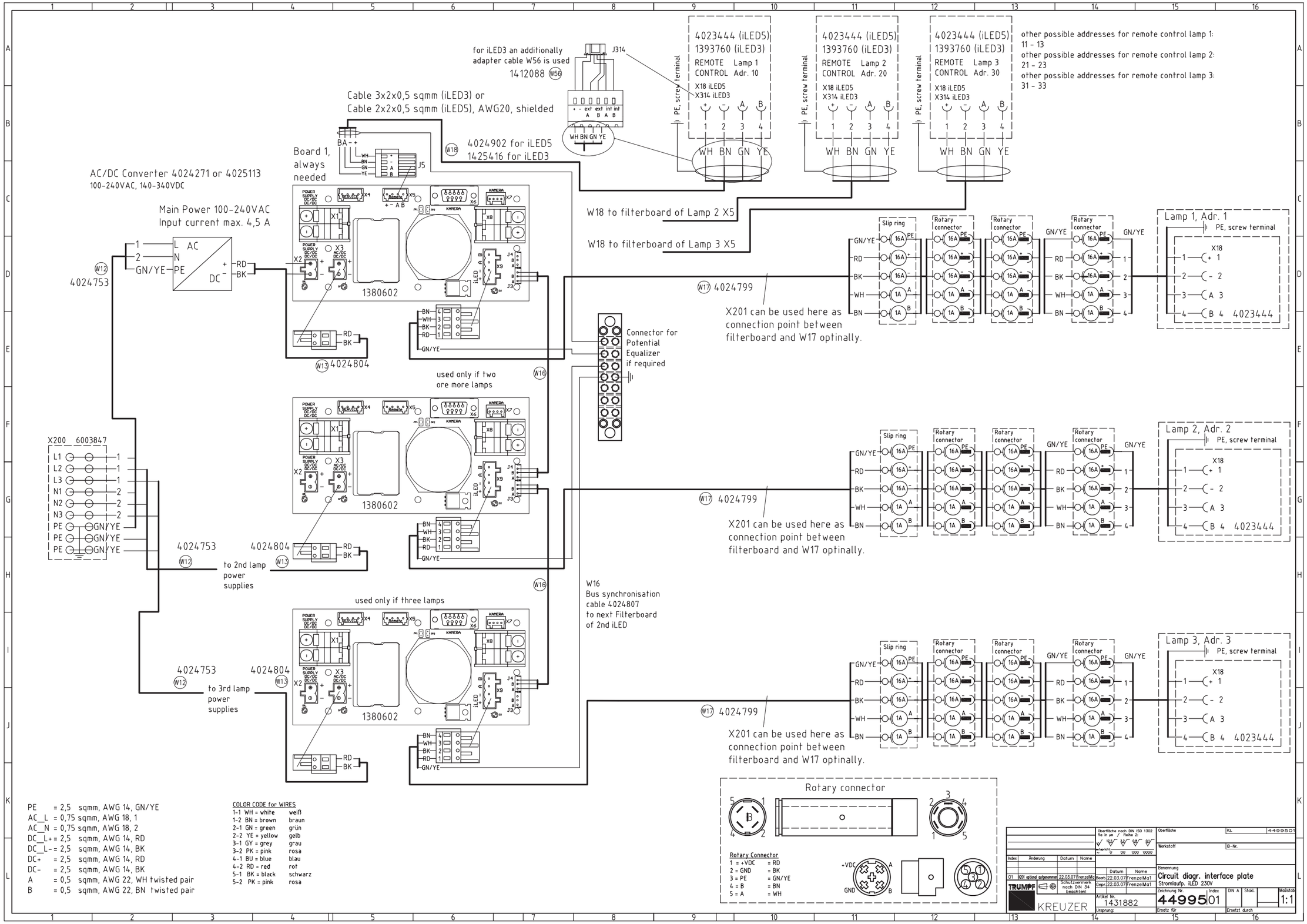
22.1 Interface Plate Circuit Diagram (Maximum Equipment)



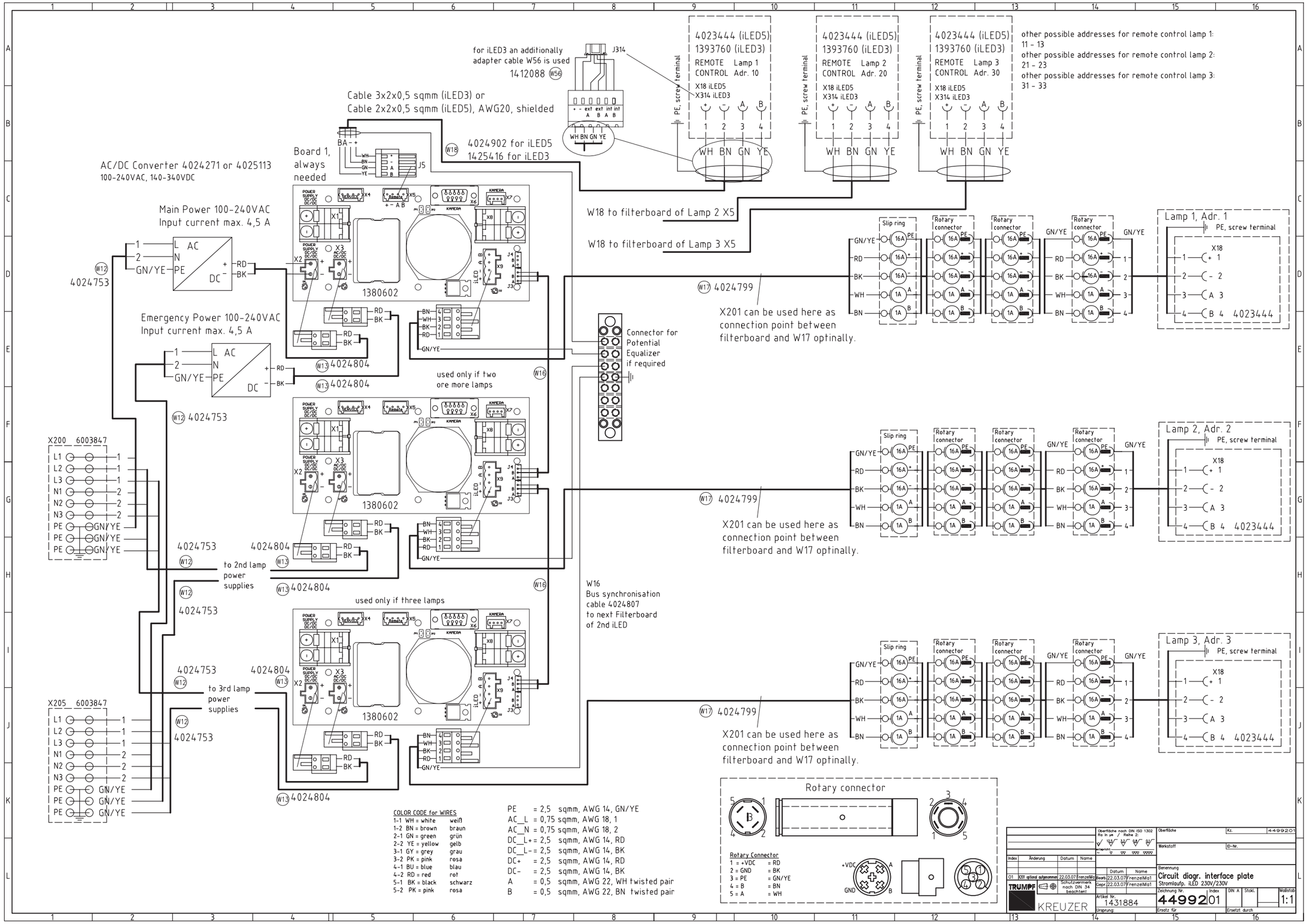

DC/DC Converter 4024726
20-40VDC, 18-28VAC
Main Power 21-32VDC
Input current max. 20A
W14 4024805
Emergency Power 21-32VDC
Input current max. 20A
W13 4024804
W15 4024806
Board 1, always needed
Cable 3x2x0,5 sqmm (iLED3) or
Cable 2x2x0,5 sqmm (iLED5), AWG20, shielded
W18 4024902 for iLED5
1425416 for iLED3
for iLED3 an additionally adapter cable W56 is used
1412088 W56
J314
WH BN GN YE
4023444 (iLED5)
1393760 (iLED3)
REMOTE Lamp 1
CONTROL Adr. 10
X18 iLED5
X314 iLED3
PE, screw terminal
4023444 (iLED5)
1393760 (iLED3)
REMOTE Lamp 2
CONTROL Adr. 20
X18 iLED5
X314 iLED3
other possible addresses for remote control lamp 1:
11 - 13
other possible addresses for remote control lamp 2:
21 - 23
W18 to filterboard of Lamp 2 X5
1380602
used only if two ore more lamps
W16 Bus synchronisation cable 4024807 to next Filterboard of 2nd iLED
Connector for Potential Equalizer if required
W17 4024799
X201 can be used here as connection point between filterboard and W17 optinally.
Slip ring
Rotary connector
Lamp 1, Adr. 1
Lamp 2, Adr. 2
X18
X202 6003849
X206 6003849
to 2nd lamp power supplies
COLOR CODE for WIRES
1-1 WH = white weiß
1-2 BN = brown braun
2-1 GN = green grün
2-2 YE = yellow gelb
3-1 GY = grey grau
3-2 PK = pink rosa
4-1 BU = blue blau
4-2 RD = red rot
5-1 BK = black schwarz
5-2 PK = pink rosa
PE = 2,5 sqmm, AWG 14, GN/YE
AC_L = 0,75 sqmm, AWG 18, 1
AC_N = 0,75 sqmm, AWG 18, 2
DC_L+ = 2,5 sqmm, AWG 14, RD
DC_L- = 2,5 sqmm, AWG 14, BK
DC+ = 2,5 sqmm, AWG 14, RD
DC- = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH twisted pair
B = 0,5 sqmm, AWG 22, BN twisted pair
Rotary Connector
1 = +VDC = RD
2 = GND = BK
3 = PE = GN/YE
4 = B = BN
5 = A = WH
Rotary connector
Circuit diagr. interface plate
Stromlaufp. iLED 24V/24V
Artikel Nr. 1431885
Zeichnung Nr. 44996 01
Maßstab 1:1

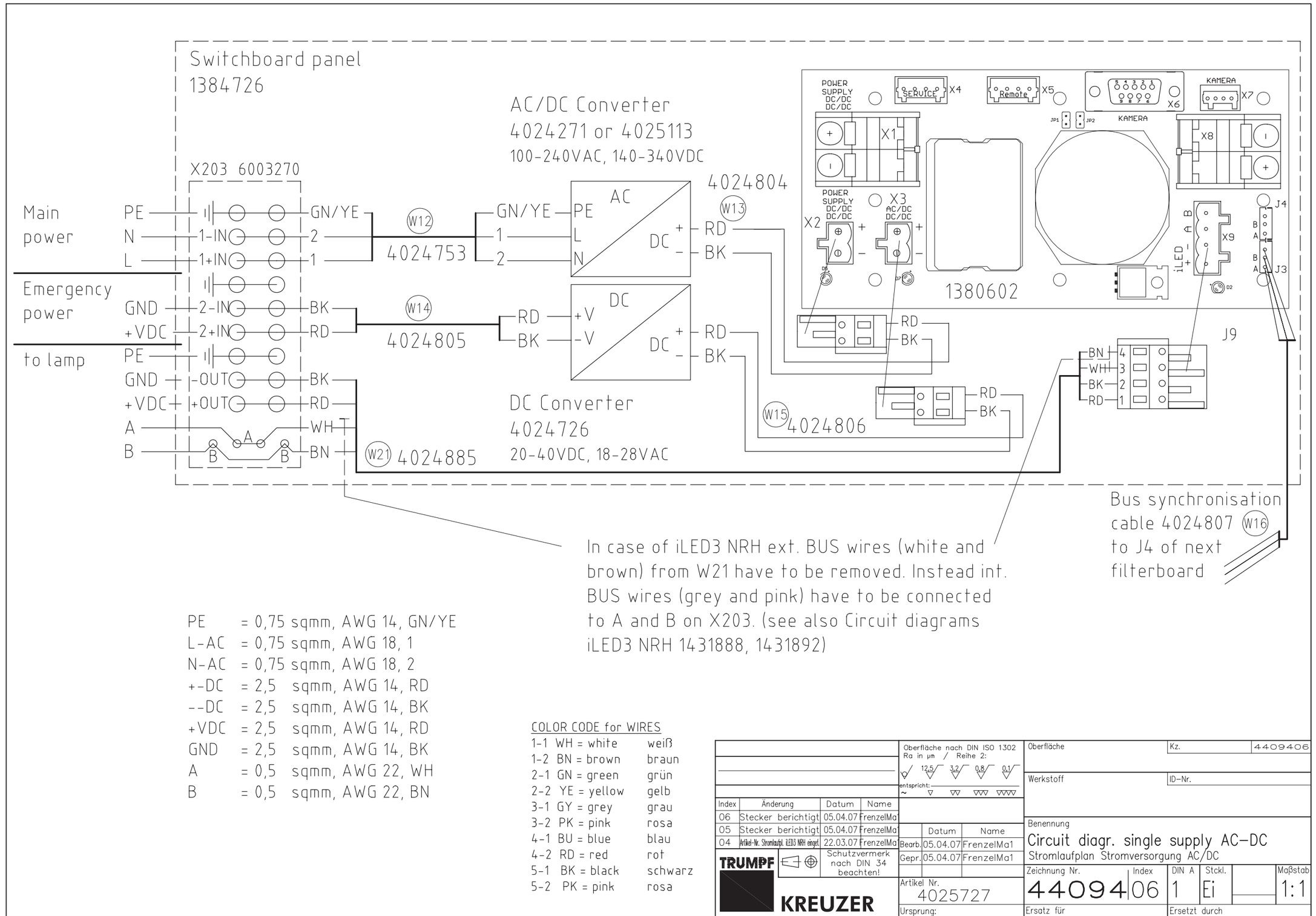
22.1 Interface Plate Circuit Diagram (Maximum Equipment)




for iLED3 an additionally adapter cable W56 is used
1412088 W56
J314
Cable 3x2x0,5 sqmm (iLED3) or
Cable 2x2x0,5 sqmm (iLED5), AWG20, shielded
W18
4024902 for iLED5
1425416 for iLED3
4023444 (iLED5)
1393760 (iLED3)
REMOTE Lamp 1
CONTROL Adr. 10
REMOTE Lamp 2
CONTROL Adr. 20
REMOTE Lamp 3
CONTROL Adr. 30
X18 iLED5
X314 iLED3
PE, screw terminal
WH BN GN YE
other possible addresses for remote control lamp 1:
11 - 13
other possible addresses for remote control lamp 2:
21 - 23
other possible addresses for remote control lamp 3:
31 - 33
Board 1, always needed
AC/DC Converter 4024271 or 4025113
100-240VAC, 140-340VDC
Main Power 100-240VAC
Input current max. 4,5 A
W12
4024753
L AC
N
PE
DC
RD
BK
GN/YE
1380602
W13 4024804
W18 to filterboard of Lamp 2 X5
W18 to filterboard of Lamp 3 X5
W17 4024799
X201 can be used here as connection point between filterboard and W17 optinally.
Slip ring
Rotary connector
Lamp 1, Adr. 1
Lamp 2, Adr. 2
Lamp 3, Adr. 3
Connector for Potential Equalizer if required
W16
used only if two ore more lamps
used only if three lamps
X200 6003847
L1
L2
L3
N1
N2
N3
PE
to 2nd lamp power supplies
to 3rd lamp power supplies
W16
Bus synchronisation cable 4024807
to next Filterboard of 2nd iLED
Rotary connector
Rotary Connector
1 = +VDC = RD
2 = GND = BK
3 = PE = GN/YE
4 = B = BN
5 = A = WH
PE = 2,5 sqmm, AWG 14, GN/YE
AC_L = 0,75 sqmm, AWG 18, 1
AC_N = 0,75 sqmm, AWG 18, 2
DC_L+ = 2,5 sqmm, AWG 14, RD
DC_L- = 2,5 sqmm, AWG 14, BK
DC+ = 2,5 sqmm, AWG 14, RD
DC- = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH twisted pair
B = 0,5 sqmm, AWG 22, BN twisted pair
COLOR CODE for WIRES
1-1 WH = white weiß
1-2 BN = brown braun
2-1 GN = green grün
2-2 YE = yellow gelb
3-1 GY = grey grau
3-2 PK = pink rosa
4-1 BU = blue blau
4-2 RD = red rot
5-1 BK = black schwarz
5-2 PK = pink rosa
Benennung
Circuit diagr. interface plate
Stromlaufp. iLED 230V
Zeichnung Nr. 44995 01
Artikel Nr. 1431882
Maßstab 1:1
KREUZER

22.1 Interface Plate Circuit Diagram (Maximum Equipment)





PE = 0,75 sqmm, AWG 14, GN/YE
L-AC = 0,75 sqmm, AWG 18, 1
N-AC = 0,75 sqmm, AWG 18, 2
+-DC = 2,5 sqmm, AWG 14, RD
--DC = 2,5 sqmm, AWG 14, BK
+VDC = 2,5 sqmm, AWG 14, RD
GND = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH
B = 0,5 sqmm, AWG 22, BN

COLOR CODE for WIRES

1-1	WH = white	weiß
1-2	BN = brown	braun
2-1	GN = green	grün
2-2	YE = yellow	gelb
3-1	GY = grey	grau
3-2	PK = pink	rosa
4-1	BU = blue	blau
4-2	RD = red	rot
5-1	BK = black	schwarz
5-2	PK = pink	rosa

Index	Änderung	Datum	Name
06	Stecker berichtigt	05.04.07	FrenzelMa1
05	Stecker berichtigt	05.04.07	FrenzelMa1
04	Artikel-Nr. Stromlaufpl. iLED3 NRH eingef.	22.03.07	FrenzelMa1

TRUMPF KREUZER — Schutzvermerk nach DIN 34 beachten!

Oberfläche nach DIN ISO 1302 Ra in µm / Reihe 2: 12,5 3,2 0,8 0,1 entspricht: ~ ▽ ▽▽ ▽▽▽ ▽▽▽▽

	Datum	Name
Bearb.	05.04.07	FrenzelMa1
Gepr.	05.04.07	FrenzelMa1

Artikel Nr. 4025727
Ursprung:

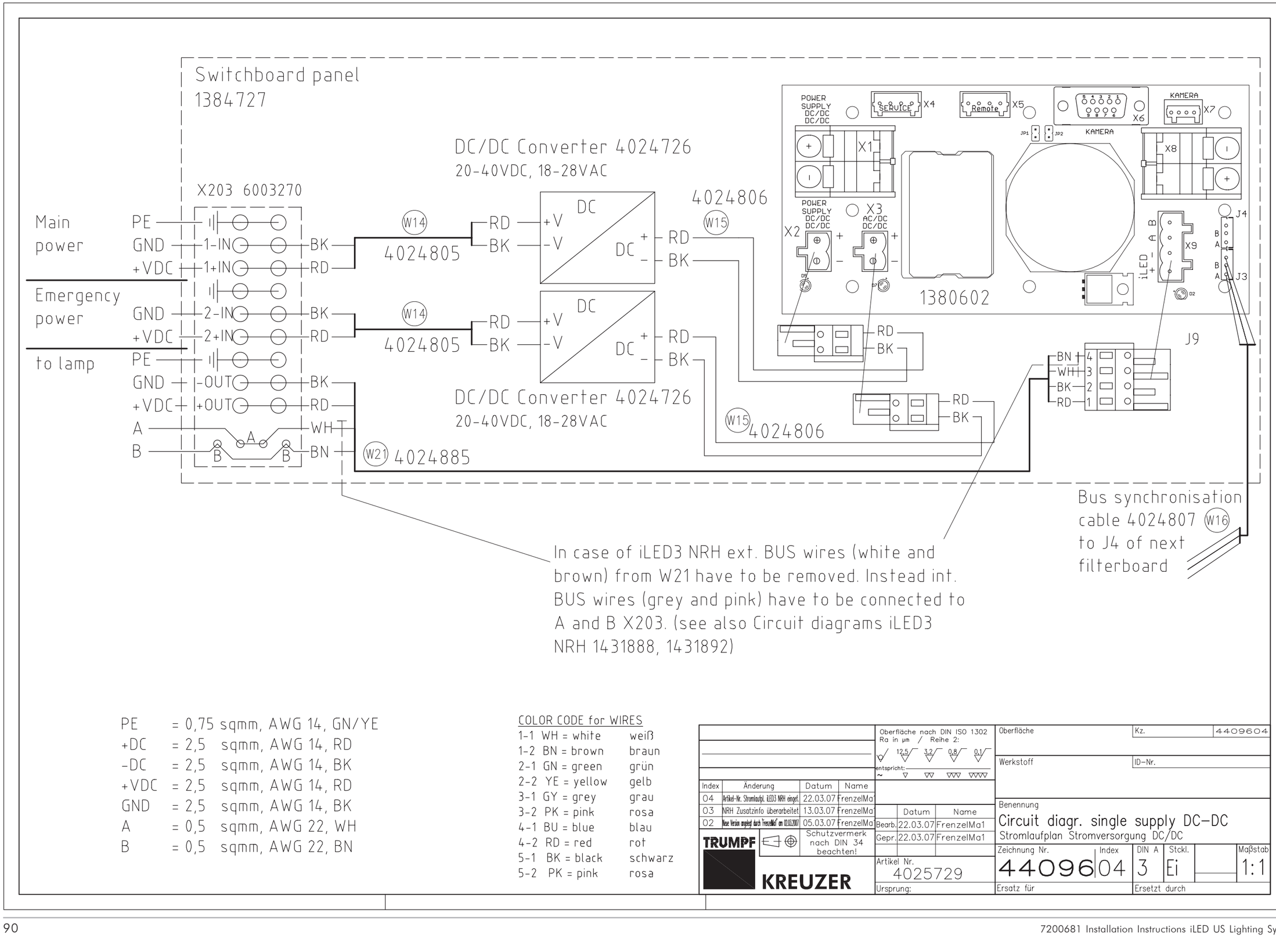
Oberfläche | Kz. 4409406
Werkstoff | ID-Nr.

Benennung
Circuit diagr. single supply AC–DC
Stromlaufplan Stromversorgung AC/DC

Zeichnung Nr.	Index	DIN A	Stckl.	Maßstab
44094	06	1	Ei	1:1

Ersatz für | Ersetzt durch

22.2 Circuit Diagram – Control Box Plates



PE = 0,75 sqmm, AWG 14, GN/YE
+DC = 2,5 sqmm, AWG 14, RD
-DC = 2,5 sqmm, AWG 14, BK
+VDC = 2,5 sqmm, AWG 14, RD
GND = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH
B = 0,5 sqmm, AWG 22, BN

COLOR CODE for WIRES

1-1	WH = white	weiß
1-2	BN = brown	braun
2-1	GN = green	grün
2-2	YE = yellow	gelb
3-1	GY = grey	grau
3-2	PK = pink	rosa
4-1	BU = blue	blau
4-2	RD = red	rot
5-1	BK = black	schwarz
5-2	PK = pink	rosa

Index	Änderung	Datum	Name
04	Artikel-Nr. Stromlaufpl. iLED3 NRH eingef.	22.03.07	FrenzelMa
03	NRH Zusatzinfo überarbeitet	13.03.07	FrenzelMa
02	Neue Version angelegt durch TrenzelMa am 02.03.2007	05.03.07	FrenzelMa

TRUMPF KREUZER

Schutzvermerk nach DIN 34 beachten!

Oberfläche nach DIN ISO 1302
Ra in µm / Reihe 2:
12,5 3,2 0,8 0,1
entspricht:

	Datum	Name
Bearb.	22.03.07	FrenzelMa1
Gepr.	22.03.07	FrenzelMa1

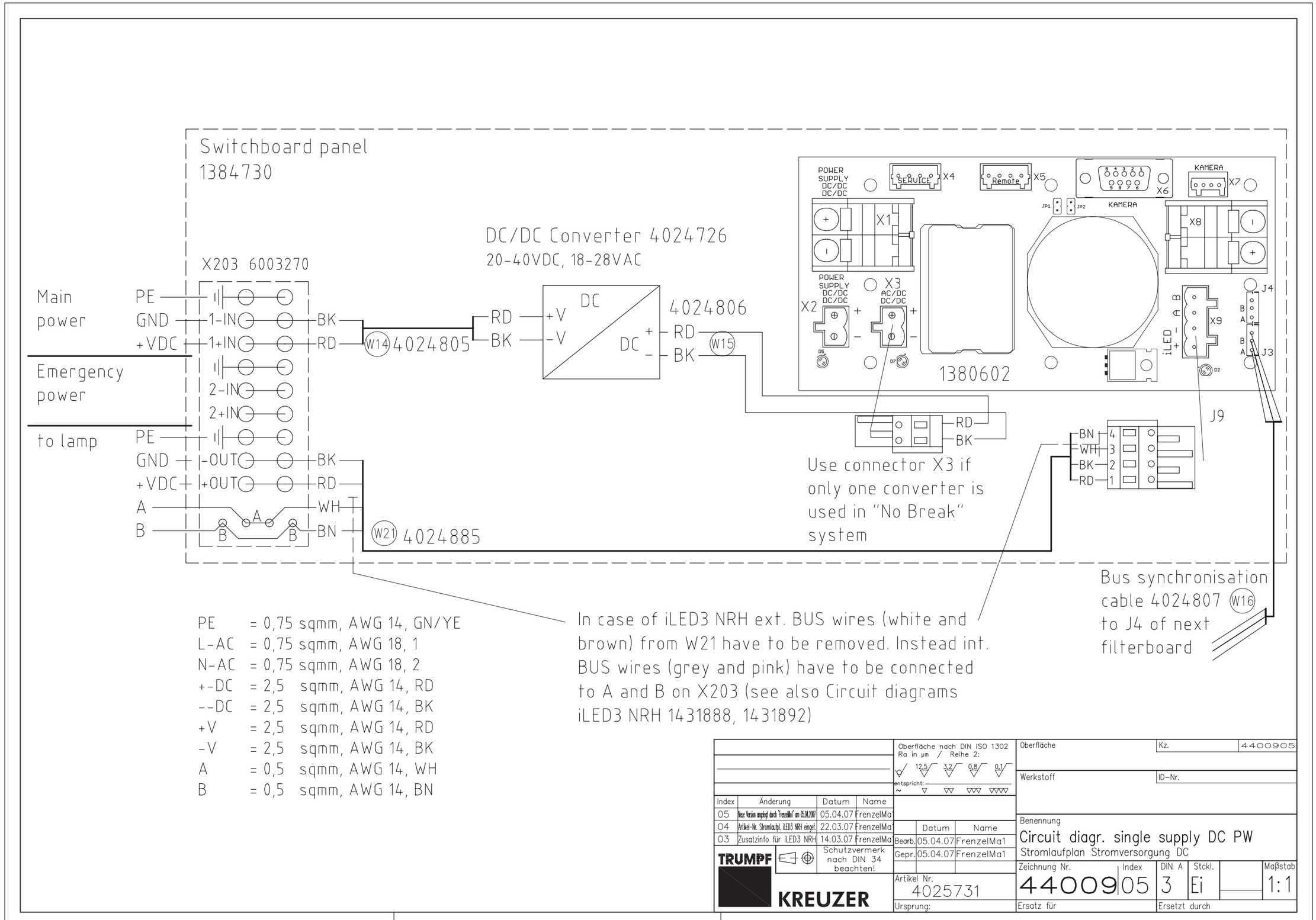
Artikel Nr. 4025729
Ursprung:

Oberfläche | Kz. 4409604
Werkstoff | ID-Nr.

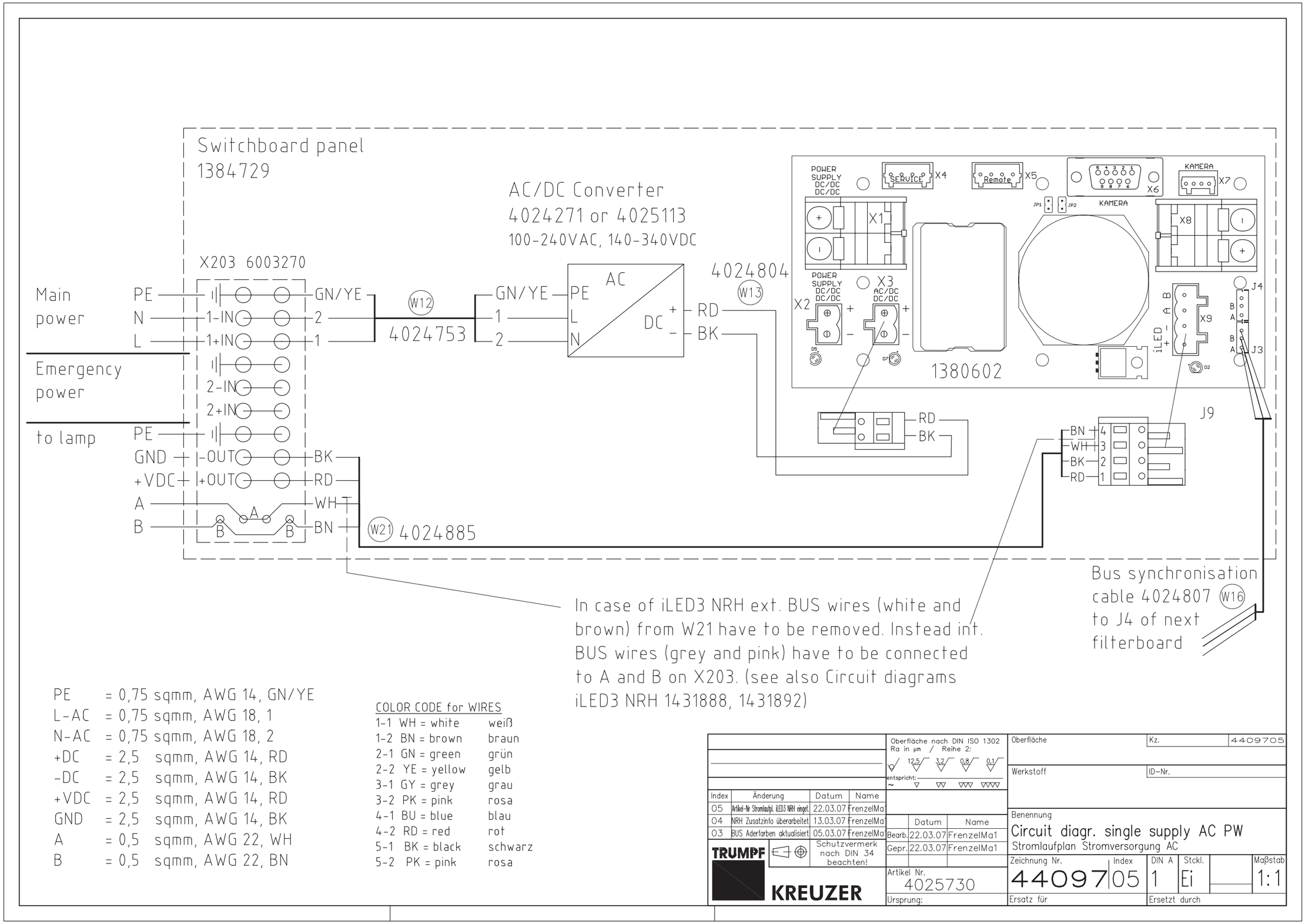
Benennung
Circuit diagr. single supply DC–DC
Stromlaufplan Stromversorgung DC/DC

Zeichnung Nr.	Index	DIN A	Stckl.	Maßstab
44096	04	3	Ei	1:1

Ersatz für | Ersetzt durch


Switchboard panel
1384730
X203 6003270
Main power
Emergency power
to lamp
PE
GND
+VDC
1-IN
1+IN
2-IN
2+IN
-OUT
+OUT
A
B
BK
RD
WH
BN
W14 4024805
DC/DC Converter 4024726
20-40VDC, 18-28VAC
RD
BK
+V
-V
DC
4024806
W15
POWER SUPPLY DC/DC DC/DC
X1
X2
X3 AC/DC DC/DC
SERVICE
X4
Remote
X5
X6
KAMERA
X7
X8
X9
iLED
J4
J3
J9
D5
D7
D2
1380602
Use connector X3 if only one converter is used in "No Break" system
BN
WH
BK
RD
4
3
2
1
W21 4024885
Bus synchronisation cable 4024807 W16 to J4 of next filterboard
In case of iLED3 NRH ext. BUS wires (white and brown) from W21 have to be removed. Instead int. BUS wires (grey and pink) have to be connected to A and B on X203 (see also Circuit diagrams iLED3 NRH 1431888, 1431892)
PE = 0,75 sqmm, AWG 14, GN/YE
L-AC = 0,75 sqmm, AWG 18, 1
N-AC = 0,75 sqmm, AWG 18, 2
+-DC = 2,5 sqmm, AWG 14, RD
--DC = 2,5 sqmm, AWG 14, BK
+V = 2,5 sqmm, AWG 14, RD
-V = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 14, WH
B = 0,5 sqmm, AWG 14, BN
Oberfläche nach DIN ISO 1302
Ra in µm / Reihe 2:
12,5 3,2 0,8 0,1
entspricht:
Index Änderung Datum Name
05 Neue Version angelegt durch Frenzelma1 am 05.04.2007 05.04.07 FrenzelMa1
04 Artikel-Nr. Stromlaufpl. iLED3 NRH eingef. 22.03.07 FrenzelMa1
03 Zusatzinfo für iLED3 NRH 14.03.07 FrenzelMa1
TRUMPF
Schutzvermerk nach DIN 34 beachten!
KREUZER
Datum Name
Bearb. 05.04.07 FrenzelMa1
Gepr. 05.04.07 FrenzelMa1
Artikel Nr. 4025731
Ursprung:
Oberfläche Kz. 4400905
Werkstoff ID-Nr.
Benennung
Circuit diagr. single supply DC PW
Stromlaufplan Stromversorgung DC
Zeichnung Nr. 4400905 Index
DIN A 3 Stckl. Ei
Maßstab 1:1
Ersatz für Ersetzt durch

22.2 Circuit Diagram – Control Box Plates



PE = 0,75 sqmm, AWG 14, GN/YE
L-AC = 0,75 sqmm, AWG 18, 1
N-AC = 0,75 sqmm, AWG 18, 2
+DC = 2,5 sqmm, AWG 14, RD
-DC = 2,5 sqmm, AWG 14, BK
+VDC = 2,5 sqmm, AWG 14, RD
GND = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH
B = 0,5 sqmm, AWG 22, BN

COLOR CODE for WIRES

1-1	WH = white	weiß
1-2	BN = brown	braun
2-1	GN = green	grün
2-2	YE = yellow	gelb
3-1	GY = grey	grau
3-2	PK = pink	rosa
4-1	BU = blue	blau
4-2	RD = red	rot
5-1	BK = black	schwarz
5-2	PK = pink	rosa

Index	Änderung	Datum	Name
05	Artikel-Nr Stromlaufpl. iLED3 NRH einget.	22.03.07	FrenzelMa
04	NRH Zusatzinfo überarbeitet	13.03.07	FrenzelMa
03	BUS Aderfarben aktualisiert	05.03.07	FrenzelMa

TRUMPF KREUZER

Schutzvermerk nach DIN 34 beachten!

Oberfläche nach DIN ISO 1302 Ra in µm / Reihe 2: 12,5 3,2 0,8 0,1
entspricht:

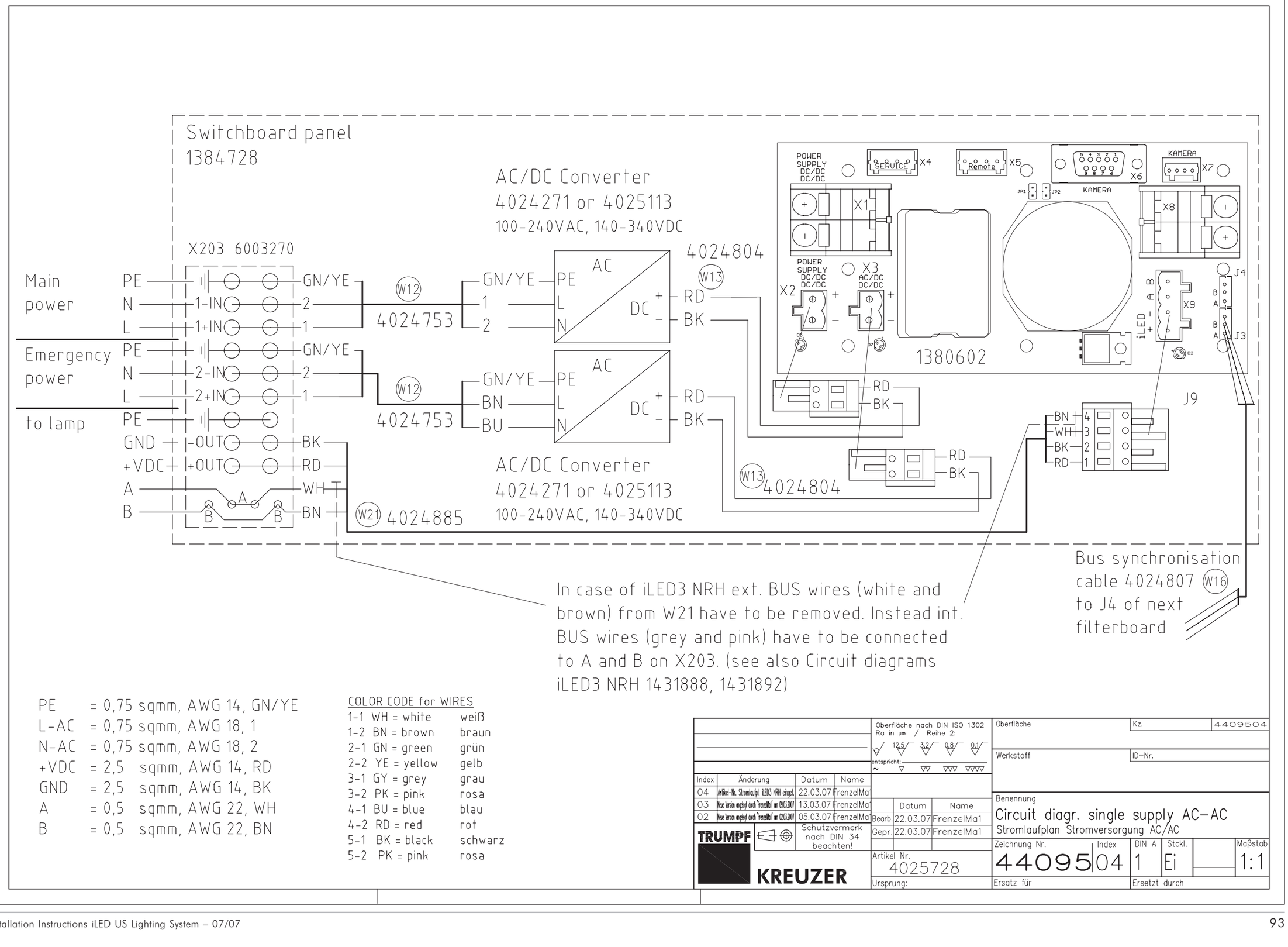
	Datum	Name
Bearb.	22.03.07	FrenzelMa1
Gepr.	22.03.07	FrenzelMa1

Artikel Nr. 4025730
Ursprung:

Oberfläche | Kz. 4409705
Werkstoff | ID-Nr.
Benennung
Circuit diagr. single supply AC PW
Stromlaufplan Stromversorgung AC

Zeichnung Nr.	Index	DIN A	Stckl.		Maßstab
44097	05	1	Ei		1:1

Ersatz für | Ersetzt durch



PE = 0,75 sqmm, AWG 14, GN/YE
L-AC = 0,75 sqmm, AWG 18, 1
N-AC = 0,75 sqmm, AWG 18, 2
+VDC = 2,5 sqmm, AWG 14, RD
GND = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH
B = 0,5 sqmm, AWG 22, BN

COLOR CODE for WIRES

1-1	WH = white	weiß
1-2	BN = brown	braun
2-1	GN = green	grün
2-2	YE = yellow	gelb
3-1	GY = grey	grau
3-2	PK = pink	rosa
4-1	BU = blue	blau
4-2	RD = red	rot
5-1	BK = black	schwarz
5-2	PK = pink	rosa

Index	Änderung	Datum	Name
04	Artikel-Nr. Stromlaufpl. iLED3 NRH eingef.	22.03.07	FrenzelMa1
03	Neue Version angelegt durch 'FrenzelMa1' am 09.03.2007	13.03.07	FrenzelMa1
02	Neue Version angelegt durch 'FrenzelMa1' am 02.03.2007	05.03.07	FrenzelMa1

Schutzvermerk nach DIN 34 beachten!

TRUMPF KREUZER

Oberfläche nach DIN ISO 1302
Ra in µm / Reihe 2: 12,5 3,2 0,8 0,1
entspricht: ~ ▽ ▽▽ ▽▽▽ ▽▽▽▽

	Datum	Name
Bearb.	22.03.07	FrenzelMa1
Gepr.	22.03.07	FrenzelMa1

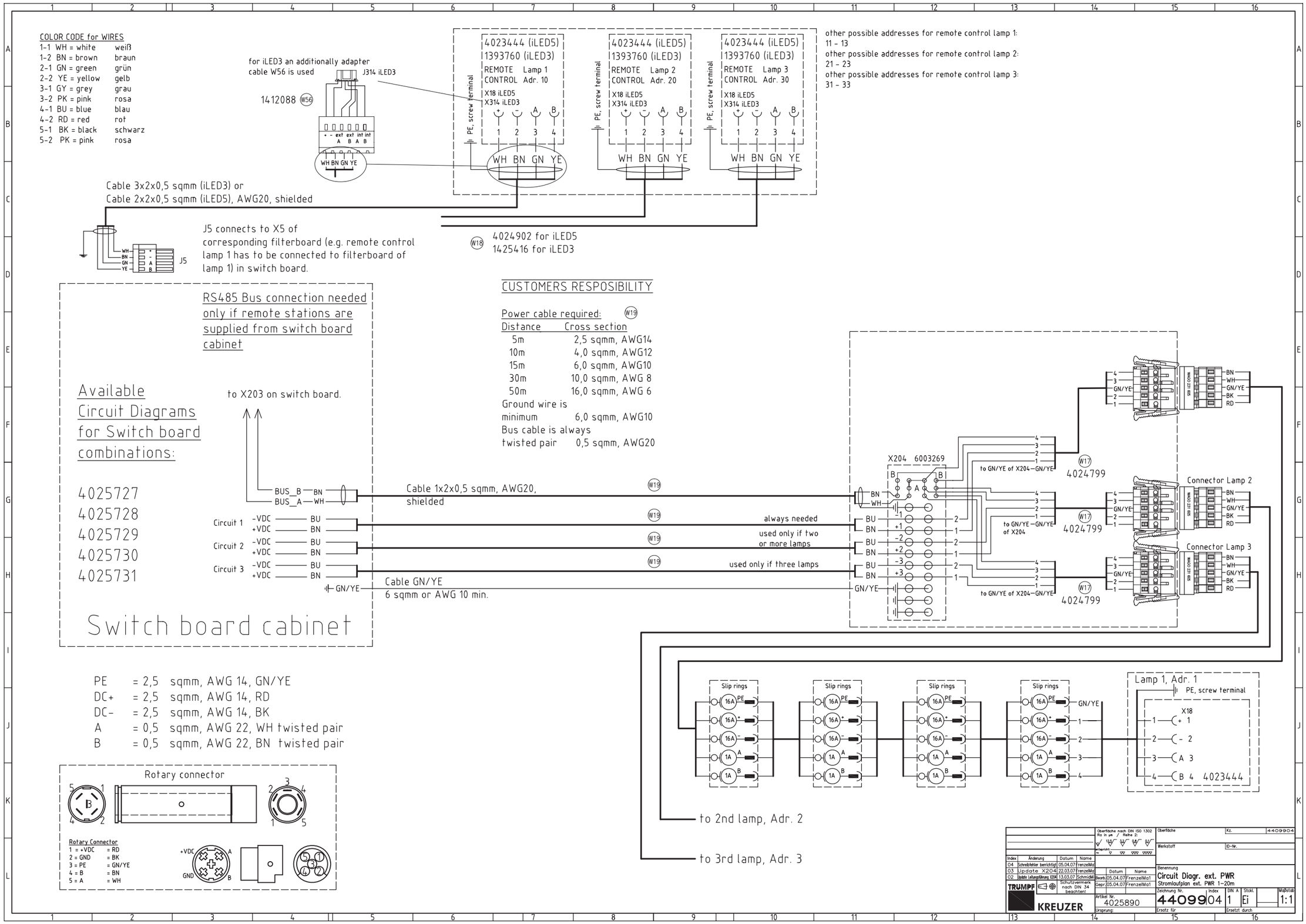
Artikel Nr. 4025728
Ursprung:

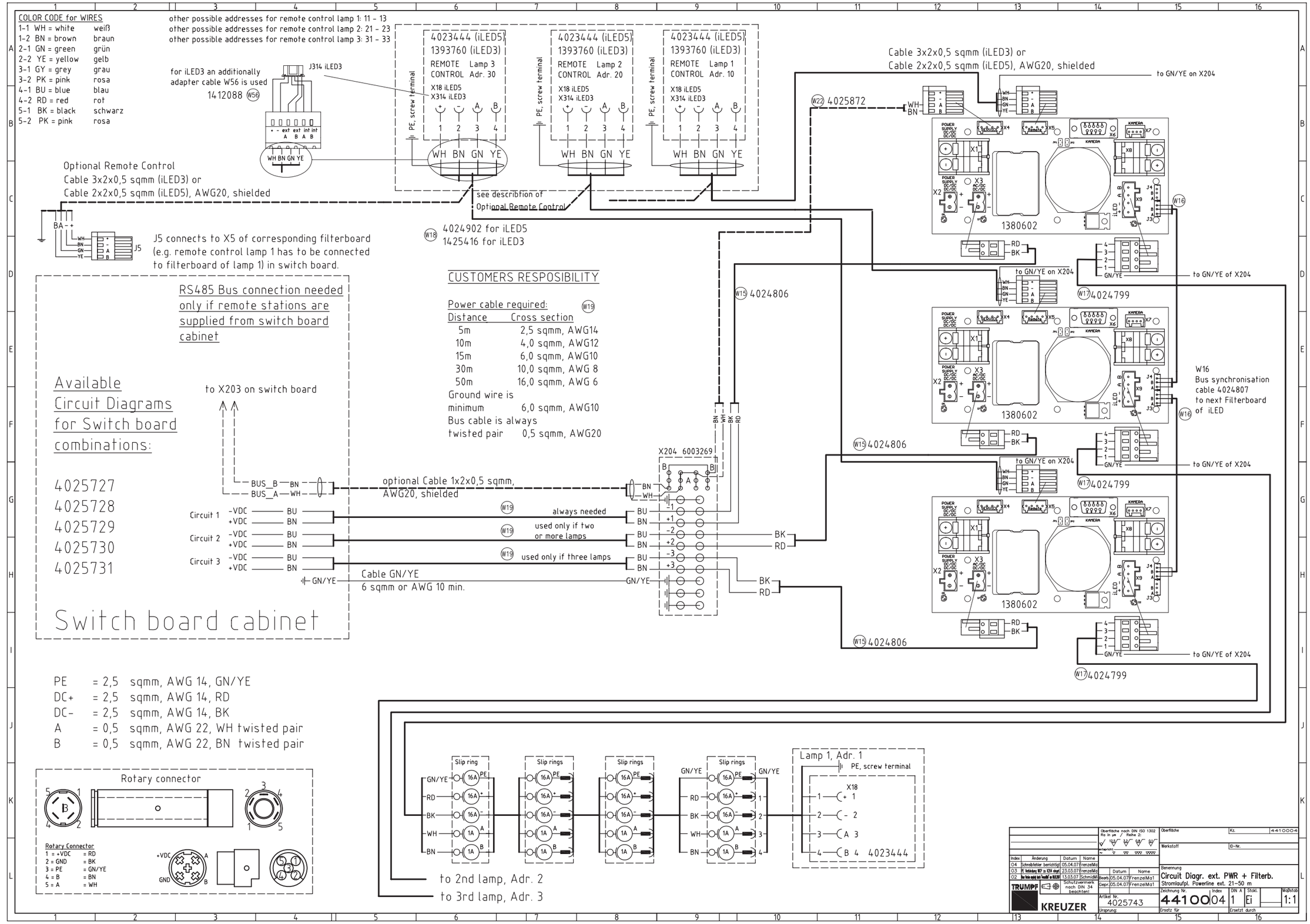
Oberfläche | Kz. 4409504
Werkstoff | ID-Nr.
Benennung
Circuit diagr. single supply AC–AC
Stromlaufplan Stromversorgung AC/AC

Zeichnung Nr.	Index	DIN A	Stckl.	Maßstab
44095	04	1	Ei	1:1

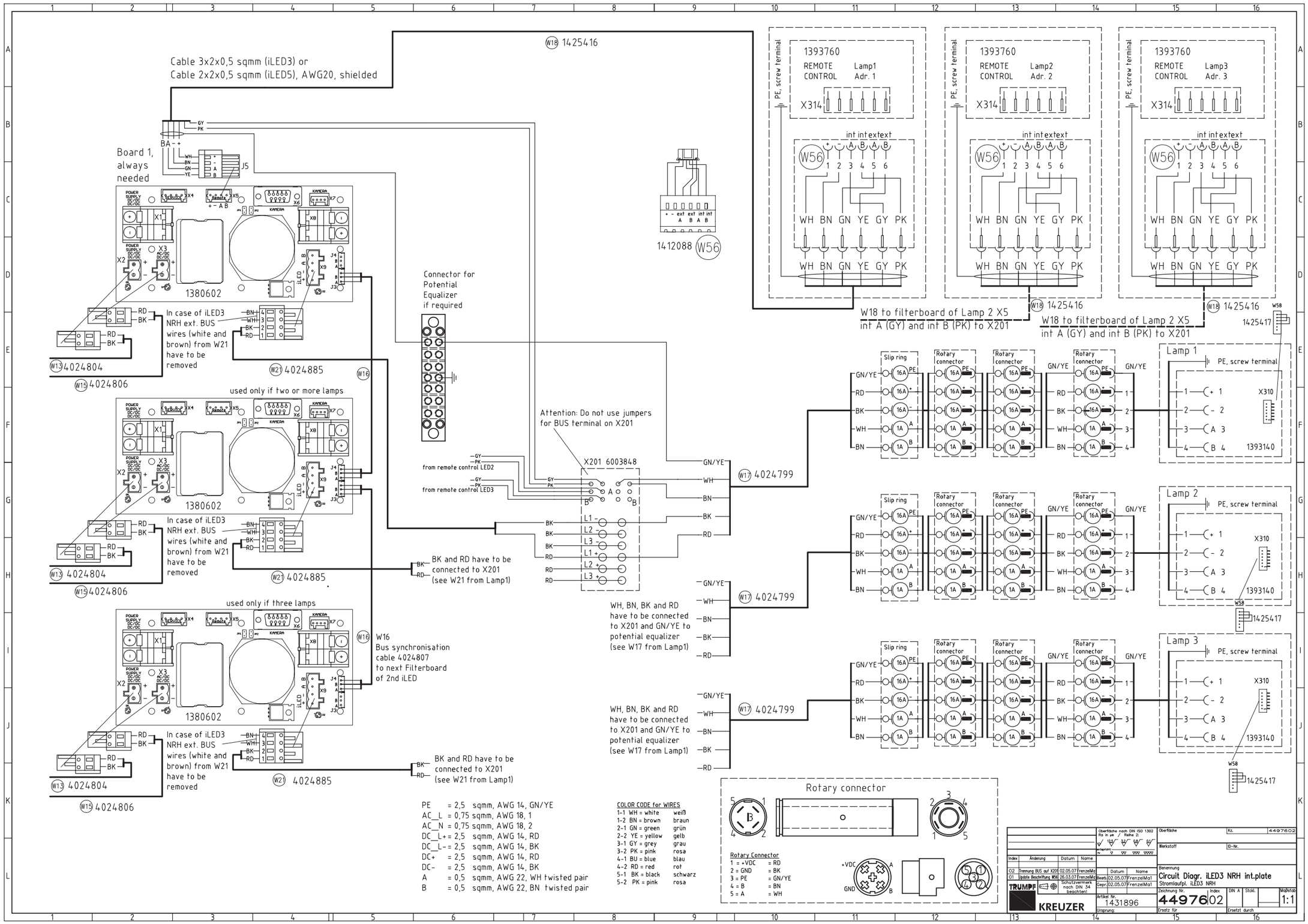
Ersatz für | Ersetzt durch

22.3 Circuit Diagram Distance 1-20 m (Maximum Equipment)




COLOR CODE for WIRES
1-1 WH = white weiß
1-2 BN = brown braun
2-1 GN = green grün
2-2 YE = yellow gelb
3-1 GY = grey grau
3-2 PK = pink rosa
4-1 BU = blue blau
4-2 RD = red rot
5-1 BK = black schwarz
5-2 PK = pink rosa
other possible addresses for remote control lamp 1: 11 – 13
other possible addresses for remote control lamp 2: 21 – 23
other possible addresses for remote control lamp 3: 31 – 33
for iLED3 an additionally adapter cable W56 is used
1412088 W56
J314 iLED3
4023444 (iLED5)
1393760 (iLED3)
REMOTE CONTROL Lamp 3 Adr. 30
REMOTE CONTROL Lamp 2 Adr. 20
REMOTE CONTROL Lamp 1 Adr. 10
X18 iLED5
X314 iLED3
PE, screw terminal
WH BN GN YE
Optional Remote Control
Cable 3x2x0,5 sqmm (iLED3) or
Cable 2x2x0,5 sqmm (iLED5), AWG20, shielded
see description of Optional Remote Control
J5 connects to X5 of corresponding filterboard (e.g. remote control lamp 1 has to be connected to filterboard of lamp 1) in switch board.
W18 4024902 for iLED5
1425416 for iLED3
Cable 3x2x0,5 sqmm (iLED3) or
Cable 2x2x0,5 sqmm (iLED5), AWG20, shielded
to GN/YE on X204
W22 4025872
1380602
to GN/YE on X204
W17 4024799
to GN/YE of X204
W15 4024806
W16
Bus synchronisation cable 4024807 to next Filterboard of iLED
CUSTOMERS RESPOSIBILITY
Power cable required:
W19
Distance Cross section
5m 2,5 sqmm, AWG14
10m 4,0 sqmm, AWG12
15m 6,0 sqmm, AWG10
30m 10,0 sqmm, AWG 8
50m 16,0 sqmm, AWG 6
Ground wire is minimum 6,0 sqmm, AWG10
Bus cable is always twisted pair 0,5 sqmm, AWG20
RS485 Bus connection needed only if remote stations are supplied from switch board cabinet
Available Circuit Diagrams for Switch board combinations:
4025727
4025728
4025729
4025730
4025731
Switch board cabinet
to X203 on switch board
BUS_B BN
BUS_A WH
optional Cable 1x2x0,5 sqmm, AWG20, shielded
X204 6003269
Circuit 1 -VDC BU +VDC BN
Circuit 2 -VDC BU +VDC BN
Circuit 3 -VDC BU +VDC BN
W19 always needed
W19 used only if two or more lamps
W19 used only if three lamps
GN/YE
Cable GN/YE 6 sqmm or AWG 10 min.
PE = 2,5 sqmm, AWG 14, GN/YE
DC+ = 2,5 sqmm, AWG 14, RD
DC- = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH twisted pair
B = 0,5 sqmm, AWG 22, BN twisted pair
Rotary connector
Rotary Connector
1 = +VDC = RD
2 = GND = BK
3 = PE = GN/YE
4 = B = BN
5 = A = WH
Slip ring
Slip rings
Lamp 1, Adr. 1
PE, screw terminal
X18
4023444
to 2nd lamp, Adr. 2
to 3rd lamp, Adr. 3
Oberfläche nach DIN ISO 1302
Werkstoff
Benennung
Circuit Diagr. ext. PWR + Filterb.
Stromlaufpl. Powerline ext. 21–50 m
Zeichnung Nr. 4410004
Artikel Nr. 4025743
Index 04
DIN A 1
Stckl. Ei
Maßstab 1:1
Ersetzt für
Ersetzt durch
KREUZER

22.5 Circuit Diagram – iLED 3 LCH



COLOR CODE for WIRES

1-1	WH = white	weiß
1-2	BN = brown	braun
2-1	GN = green	grün
2-2	YE = yellow	gelb
3-1	GY = grey	grau
3-2	PK = pink	rosa
4-1	BU = blue	blau
4-2	RD = red	rot
5-1	BK = black	schwarz
5-2	PK = pink	rosa

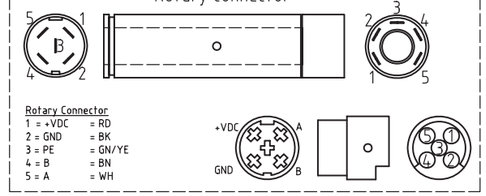
1412088 W56

1393760 REMOTE CONTROL Lamp1 Adr. 1 — X314 — PE, screw terminal — int int ext int A B A B — W56 1 2 3 4 5 6 — WH BN GN YE GY PK — W18 1425416

1393760 REMOTE CONTROL Lamp2 Adr. 2 — X314 — PE, screw terminal — int int ext int A B A B — W56 1 2 3 4 5 6 — WH BN GN YE GY PK — W18 1425416

1393760 REMOTE CONTROL Lamp3 Adr. 3 — X314 — PE, screw terminal — int int ext int A B A B — W56 1 2 3 4 5 6 — WH BN GN YE GY PK — W18 1425416

Rotary connector



Rotary Connector

1 = +VDC	= RD
2 = GND	= BK
3 = PE	= GN/YE
4 = B	= BN
5 = A	= WH

PE	= 2,5	sqmm, AWG 14, GN/YE
DC+	= 2,5	sqmm, AWG 14, RD
DC-	= 2,5	sqmm, AWG 14, BK
A	= 0,5	sqmm, AWG 22, WH twisted pair
B	= 0,5	sqmm, AWG 22, BN twisted pair

Remote Control

Cable 3x2x0,5 sqmm, AWG20, shielded

WH BN GN YE GY PK — J5

J5 connects to X5 of regarding filterboard on switch board.

to X203 on switch board (GY to A and PK to B)

CUSTOMERS RESPOSIBILITY

Power cable required:

Distance	Cross section (W19)
5m	2,5 sqmm, AWG14
10m	4,0 sqmm, AWG12
15m	6,0 sqmm, AWG10
30m	10,0 sqmm, AWG 8
50m	16,0 sqmm, AWG 6
Ground wire is minimum	6,0 sqmm, AWG10
Bus cable is always twisted pair	0,5 sqmm, AWG20

Available Circuit Diagrams for Switch board combinations:

4025727
4025728
4025729
4025730
4025731

Attention:
Bus wires A and B from X9 on filterboards must not be connected to X203. Instead int A (GY) and int B (PK) have to be connected to X203

RS485 Bus connection needed only if remote stations are supplied from switch board cabinet

to X203 on respective switch board

BUS_B — BN
BUS_A — WH

Cable 1x2x0,5 sqmm, AWG20, shielded.

Circuit 1 -VDC — BU, +VDC — BN
Circuit 2 -VDC — BU, +VDC — BN
Circuit 3 -VDC — BU, +VDC — BN

GN/YE

Cable GN/YE
6 sqmm or AWG 10 min.

always needed
used only if two ore more lamps
used only if three lamps

(W19) always needed
(W19) used only if two ore more lamps
(W19) used only if three lamps

BN WH to GN/YE of X204
BN WH to GN/YE of X204
BN WH

BU BN
BU BN
BU BN
GN/YE

Attention: Do not use jumpers for BUS terminal on X204

X204 6003269 — B A B — -1 +1 -2 +2 -3 +3

W17 4024799

Connector Lamp 1 — 4 3 GN/YE 2 1 — MAQS 231 665 — BN WH GN/YE BK RD

Connector Lamp 2 — W17 4024799 — MAQS 231 665

Connector Lamp 3 — W17 4024799 — MAQS 231 665

to PE of X204—GN/YE

Switch board cabinet

Slip rings — 16A PE, 16A +, 16A -, 1A A, 1A B — GN/YE

Lamp 1 — PE, screw terminal — X305 X310 — 1 + 1, 2 - 2, 3 A 3, 4 B 4 1393140 — W17 1425417

to 2nd lamp

to 3rd lamp

Index	Änderung	Datum	Name
07	Trennung BUS auf X204	02.05.07	FrenzelMa
06	Update Beschriftung W56	26.03.07	FrenzelMa
05	Update X204	22.03.07	FrenzelMa

Schutzvermerk nach DIN 34 beachten!

Oberfläche nach DIN ISO 1302 Ra in µm / Reihe 2:

Oberfläche — Kz. 4475807 — Werkstoff — ID-Nr.

	Datum	Name
Bearb.	02.05.07	FrenzelMa1
Gepr.	02.05.07	FrenzelMa1

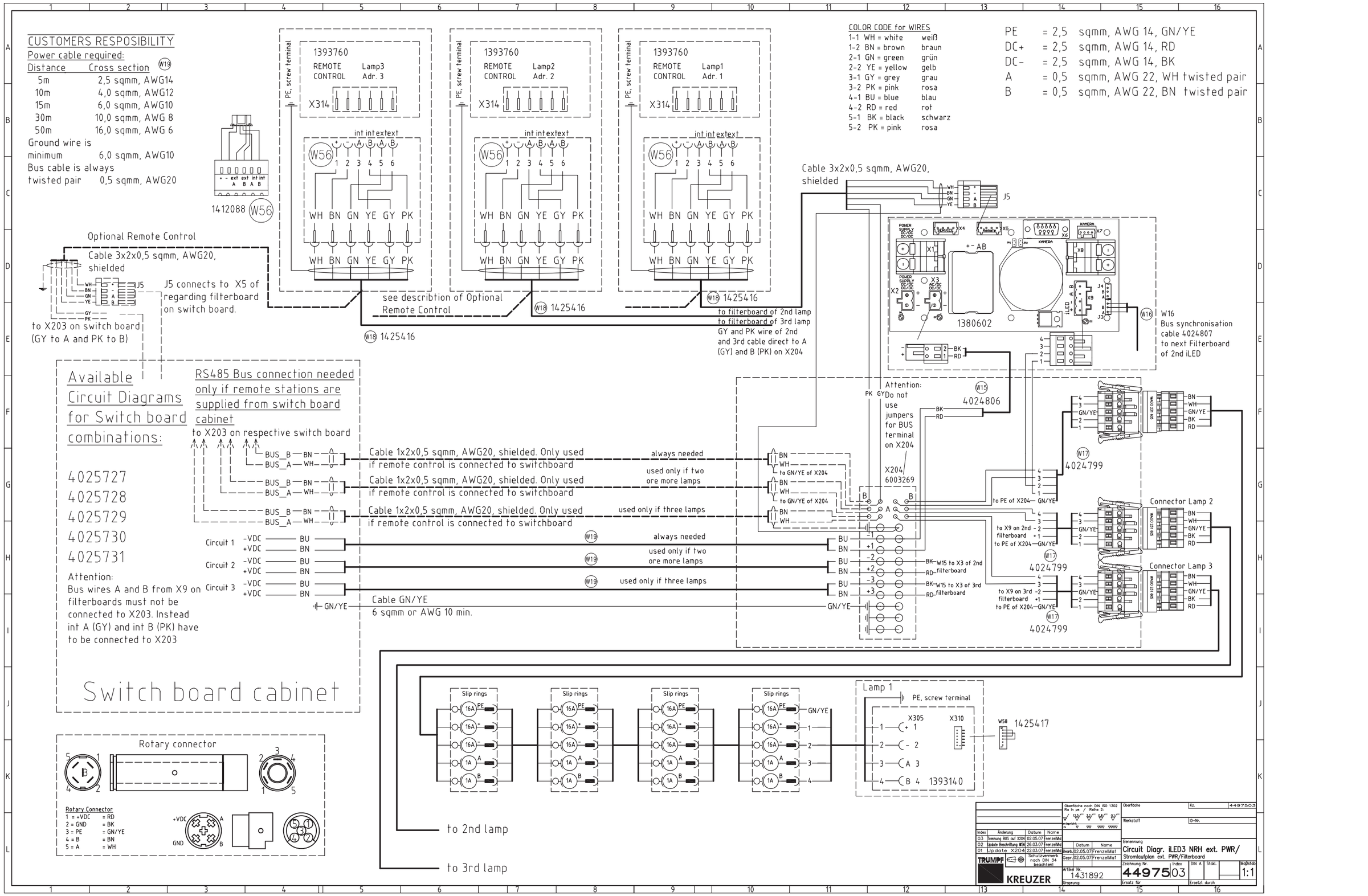
Benennung: Circuit Diagr. iLED3 NRH ext. PWR
Stromlaufplan iLED3 NRH

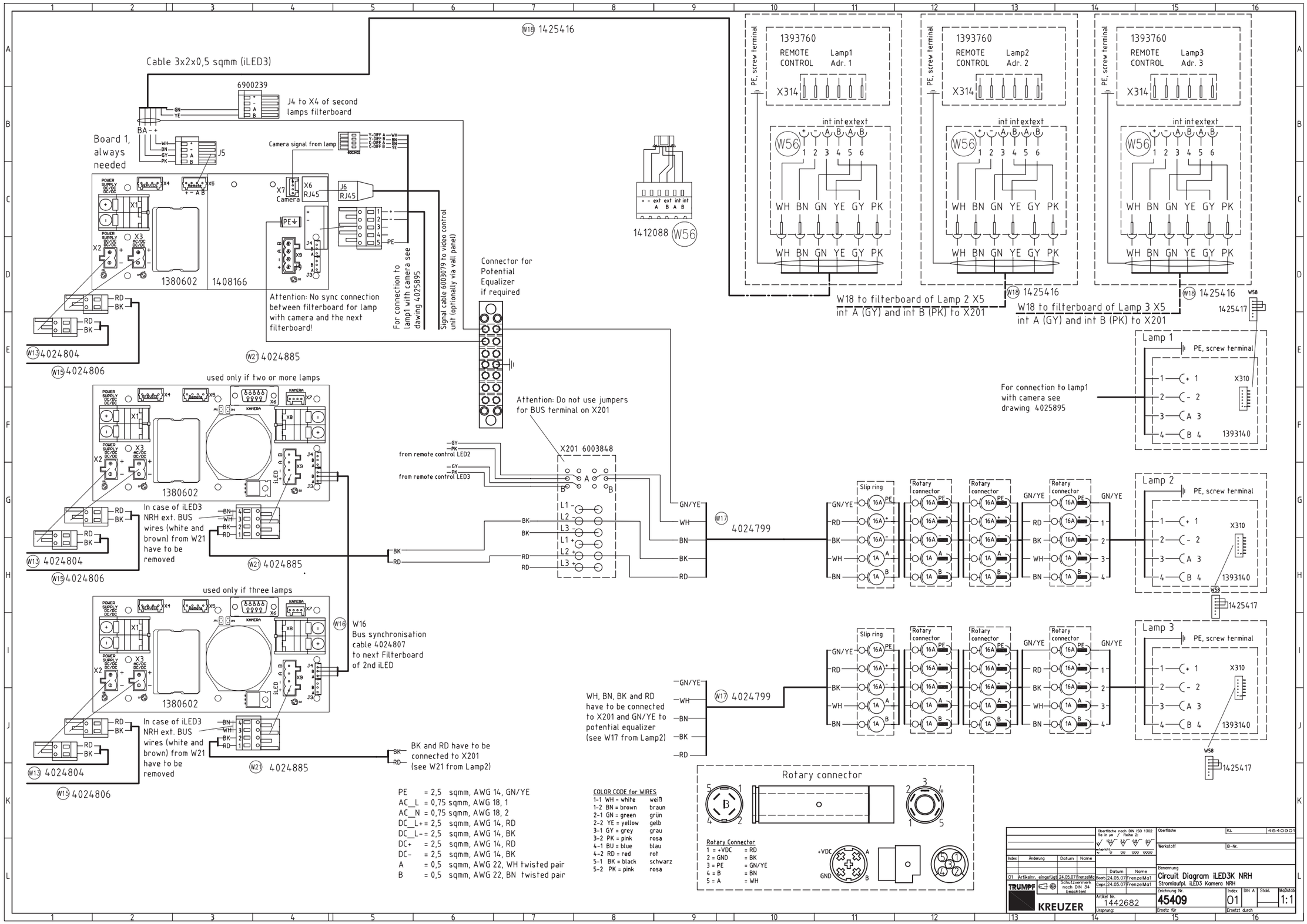
Zeichnung Nr. 44758 Index 07 — DIN A — Stckl. — Maßstab 1:1

Artikel Nr. 1431888 — Ursprung: — Ersatz für — Ersetzt durch

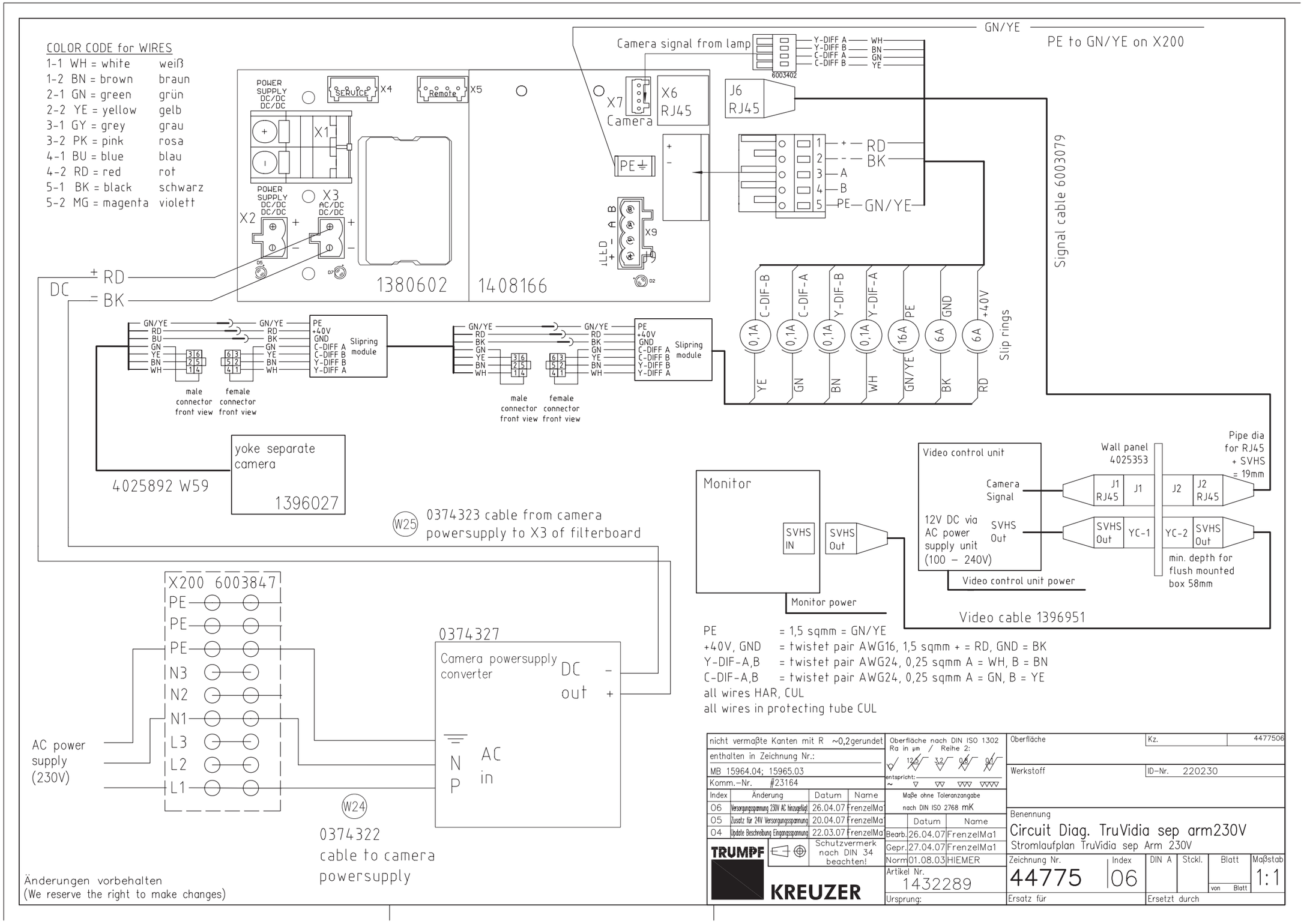
TRUMPF KREUZER

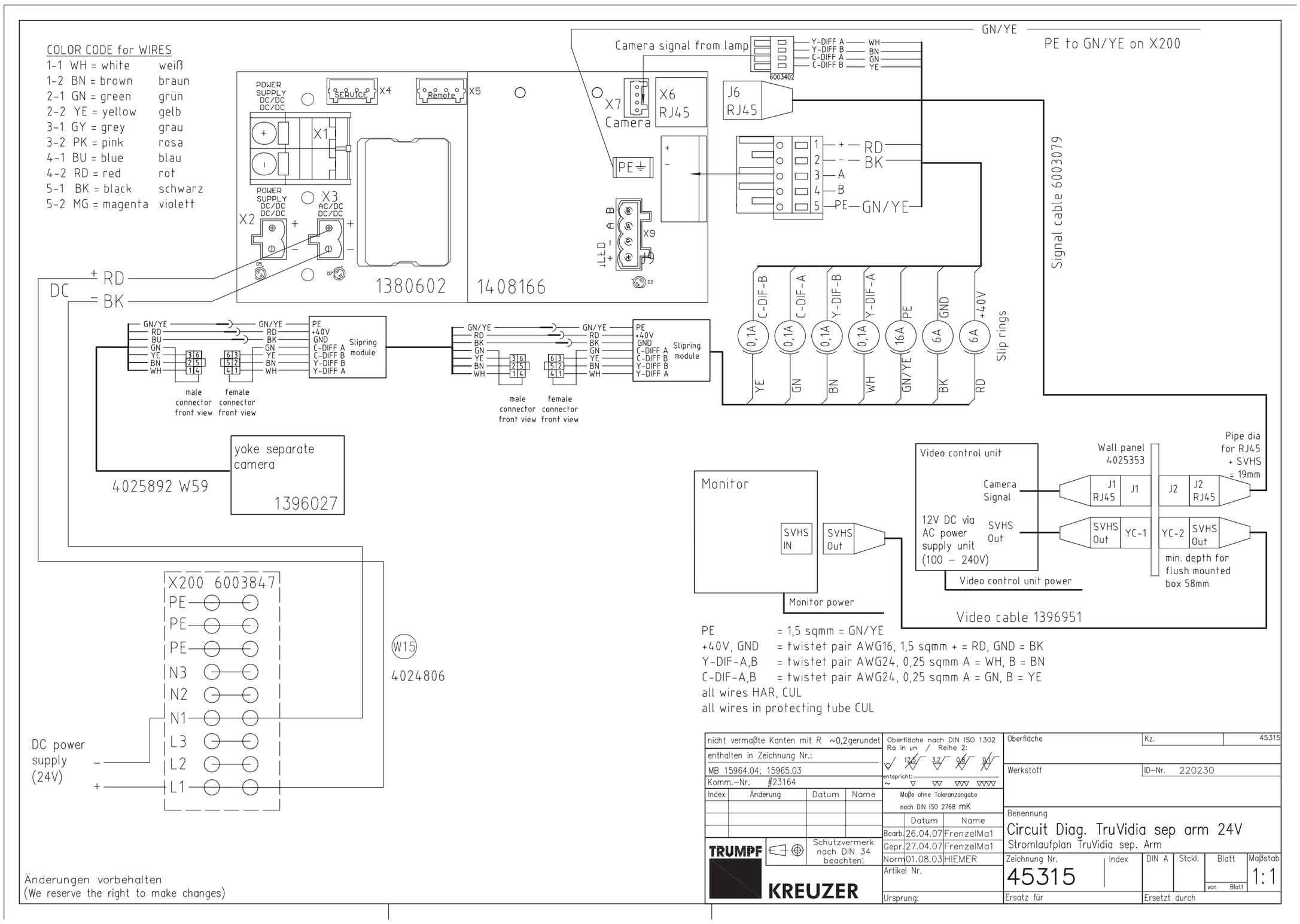
22.5 Circuit Diagram – iLED 3 LCH



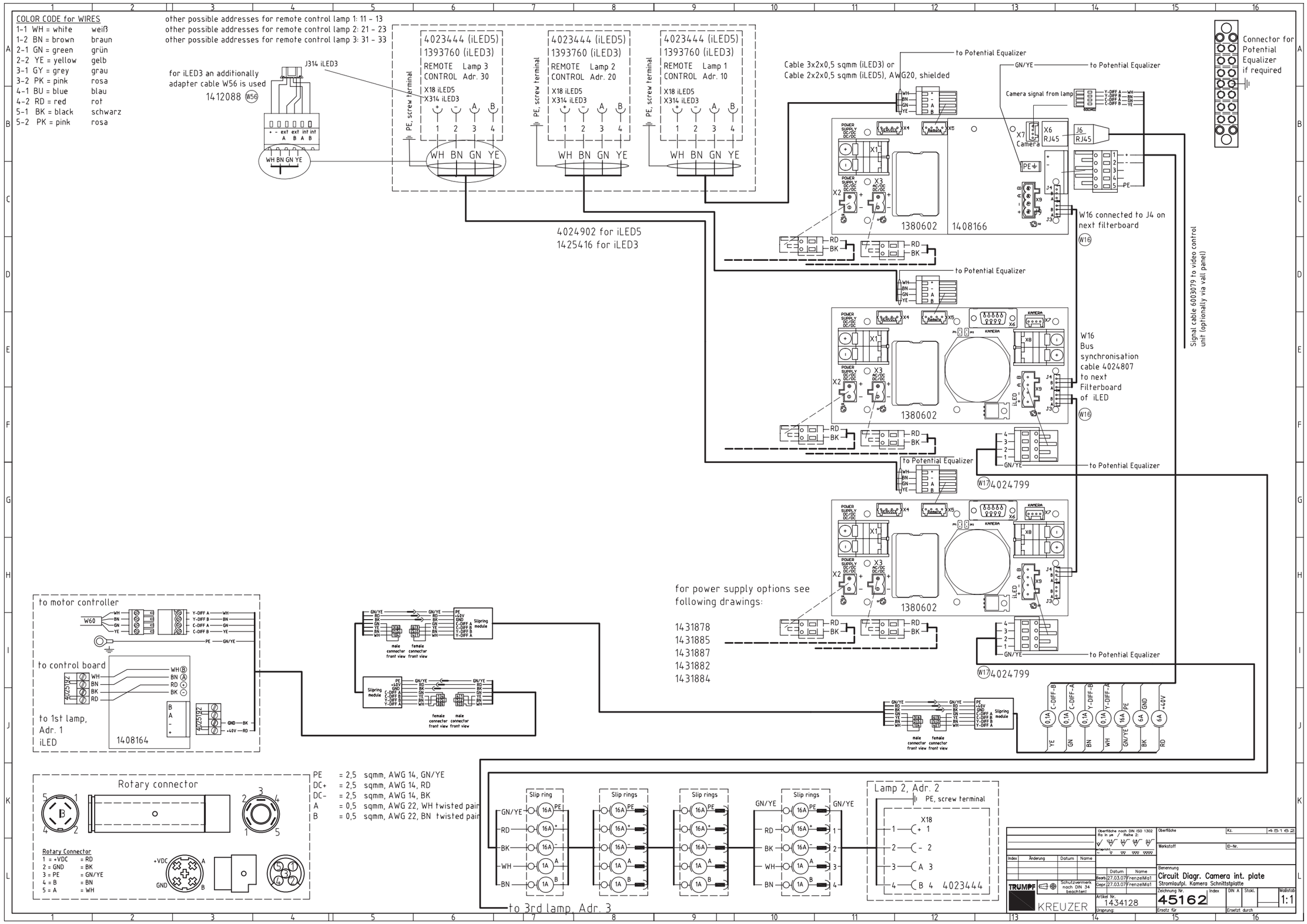

W18 1425416
Cable 3x2x0,5 sqmm (iLED3)
6900239
J4 to X4 of second lamps filterboard
Board 1, always needed
J5
Camera signal from lamp
X7 Camera
X6 RJ45
J6 RJ45
1380602
1408166
Attention: No sync connection between filterboard for lamp with camera and the next filterboard!
For connection to lamp1 with camera see dawing 4025895
Signal cable 6003079 to video control unit (optionally via wall panel)
Connector for Potential Equalizer if required
1412088 W56
1393760
REMOTE CONTROL
Lamp1 Adr. 1
Lamp2 Adr. 2
Lamp3 Adr. 3
X314
PE, screw terminal
int int ext ext
WH BN GN YE GY PK
W18 to filterboard of Lamp 2 X5 int A (GY) and int B (PK) to X201
W18 to filterboard of Lamp 3 X5 int A (GY) and int B (PK) to X201
W18 1425416
W58 1425417
Lamp 1
X310
1393140
For connection to lamp1 with camera see drawing 4025895
W13 4024804
W15 4024806
W21 4024885
used only if two or more lamps
Attention: Do not use jumpers for BUS terminal on X201
X201 6003848
from remote control LED2
from remote control LED3
GN/YE
WH
BN
BK
RD
W17 4024799
Slip ring
Rotary connector
Lamp 2
Lamp 3
In case of iLED3 NRH ext. BUS wires (white and brown) from W21 have to be removed
used only if three lamps
W16
W16 Bus synchronisation cable 4024807 to next Filterboard of 2nd iLED
BK and RD have to be connected to X201 (see W21 from Lamp2)
WH, BN, BK and RD have to be connected to X201 and GN/YE to potential equalizer (see W17 from Lamp2)
PE = 2,5 sqmm, AWG 14, GN/YE
AC_L = 0,75 sqmm, AWG 18, 1
AC_N = 0,75 sqmm, AWG 18, 2
DC_L+ = 2,5 sqmm, AWG 14, RD
DC_L- = 2,5 sqmm, AWG 14, BK
DC+ = 2,5 sqmm, AWG 14, RD
DC- = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH twisted pair
B = 0,5 sqmm, AWG 22, BN twisted pair
COLOR CODE for WIRES
1-1 WH = white weiß
1-2 BN = brown braun
2-1 GN = green grün
2-2 YE = yellow gelb
3-1 GY = grey grau
3-2 PK = pink rosa
4-1 BU = blue blau
4-2 RD = red rot
5-1 BK = black schwarz
5-2 PK = pink rosa
Rotary connector
Rotary Connector
1 = +VDC = RD
2 = GND = BK
3 = PE = GN/YE
4 = B = BN
5 = A = WH
+VDC
GND
Circuit Diagram iLED3K NRH
Stromlaufpl. iLED3 Kamera NRH
Artikel Nr. 1442682
Zeichnung Nr. 45409
KREUZER

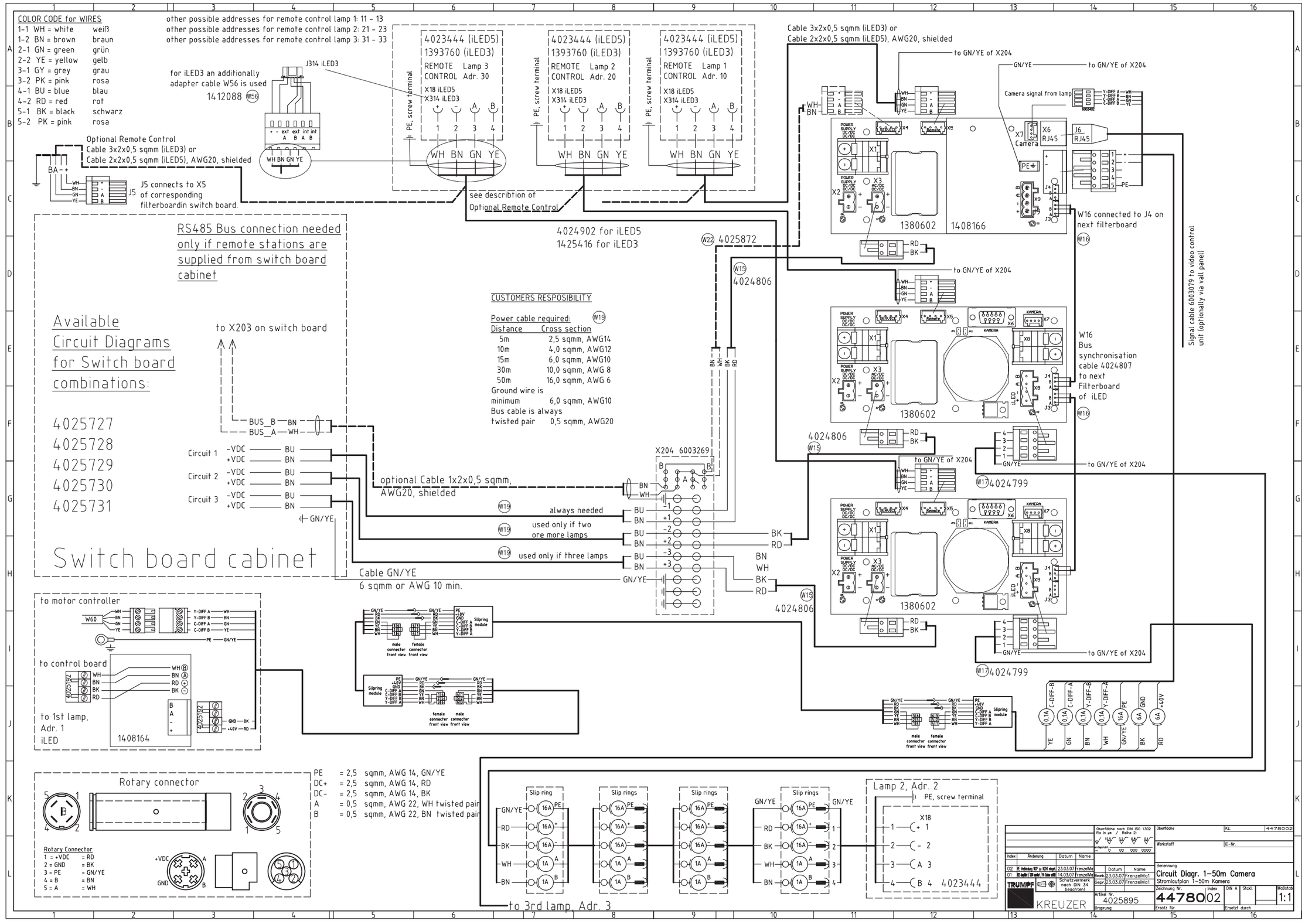
22.6 Circuit Diagram – Camera on Separate Pendant



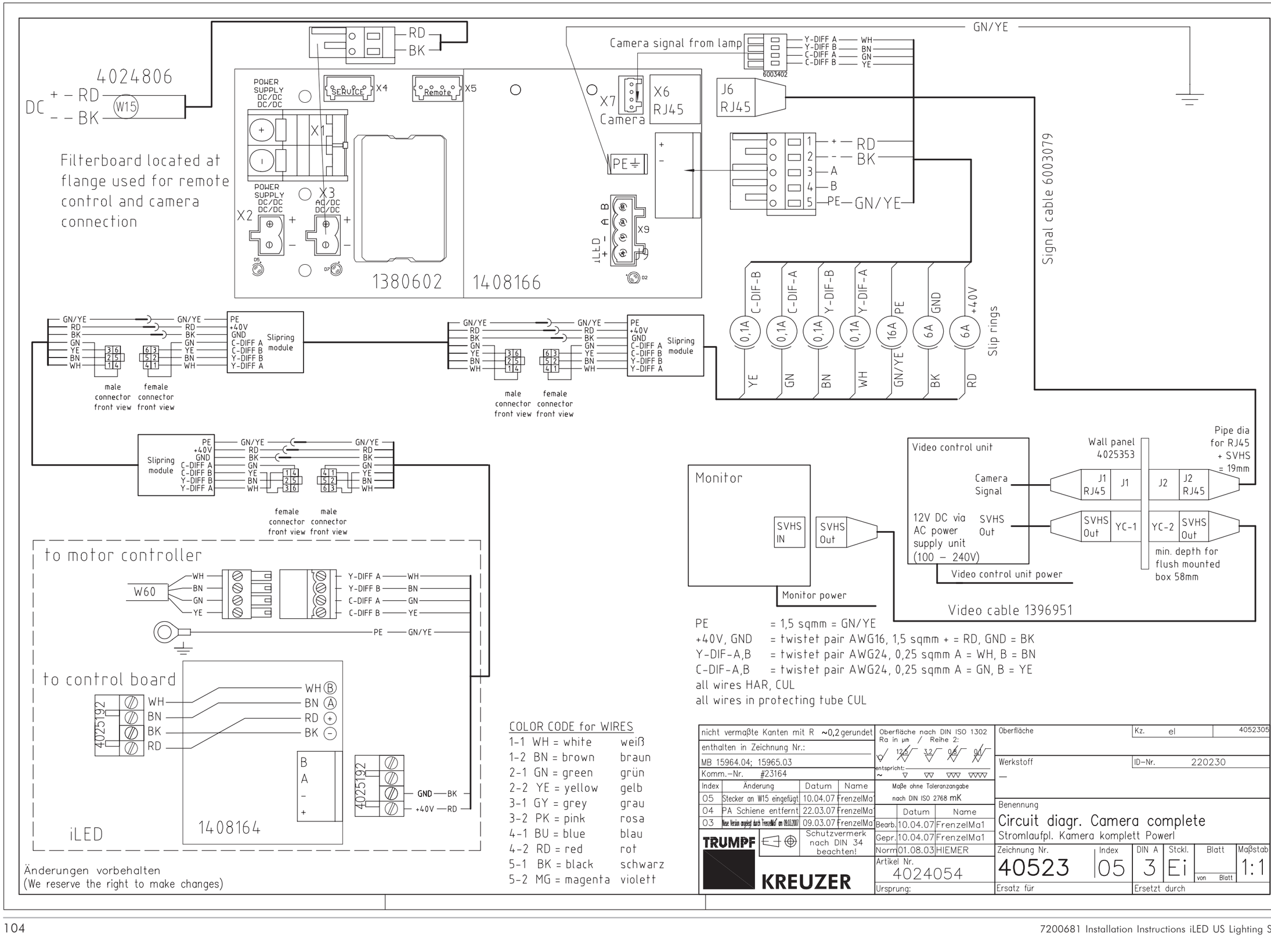

COLOR CODE for WIRES
1-1 WH = white weiß
1-2 BN = brown braun
2-1 GN = green grün
2-2 YE = yellow gelb
3-1 GY = grey grau
3-2 PK = pink rosa
4-1 BU = blue blau
4-2 RD = red rot
5-1 BK = black schwarz
5-2 MG = magenta violett
GN/YE
PE to GN/YE on X200
Camera signal from lamp
6003402
Y-DIFF A WH
Y-DIFF B BN
C-DIFF A GN
C-DIFF B YE
POWER SUPPLY DC/DC DC/DC
SERVICE X4
Remote X5
X1
X2
X3 AC/DC DC/DC
X7 Camera
X6 RJ45
J6 RJ45
PE
X9
1380602
1408166
+ RD
DC
- BK
Signal cable 6003079
GN/YE RD BU GN YE BN WH
male connector front view
female connector front view
PE +40V GND C-DIFF A C-DIFF B Y-DIFF B Y-DIFF A
Slipring module
GN/YE RD BK GN YE BN WH
male connector front view
female connector front view
PE +40V GND C-DIFF A C-DIFF B Y-DIFF B Y-DIFF A
Slipring module
0,1A C-DIF-B YE
0,1A C-DIF-A GN
0,1A Y-DIF-B BN
0,1A Y-DIF-A WH
16A PE GN/YE
6A GND BK
6A +40V RD
Slip rings
1 + RD
2 - BK
3 A
4 B
5 PE GN/YE
yoke separate camera
1396027
4025892 W59
X200 6003847
PE
PE
PE
N3
N2
N1
L3
L2
L1
W15
4024806
DC power supply (24V)
–
+
Monitor
SVHS IN
SVHS Out
Monitor power
Video control unit
Camera Signal
12V DC via AC power supply unit (100 – 240V)
SVHS Out
Video control unit power
Wall panel 4025353
J1 RJ45
J1
J2
J2 RJ45
SVHS Out
YC-1
YC-2
SVHS Out
Pipe dia for RJ45 + SVHS = 19mm
min. depth for flush mounted box 58mm
Video cable 1396951
PE = 1,5 sqmm = GN/YE
+40V, GND = twistet pair AWG16, 1,5 sqmm + = RD, GND = BK
Y-DIF-A,B = twistet pair AWG24, 0,25 sqmm A = WH, B = BN
C-DIF-A,B = twistet pair AWG24, 0,25 sqmm A = GN, B = YE
all wires HAR, CUL
all wires in protecting tube CUL
Änderungen vorbehalten
(We reserve the right to make changes)
nicht vermaßte Kanten mit R ~0,2gerundet
enthalten in Zeichnung Nr.:
MB 15964.04; 15965.03
Komm.–Nr. #23164
Index Änderung Datum Name
Schutzvermerk nach DIN 34 beachten!
TRUMPF KREUZER
Oberfläche nach DIN ISO 1302
Ra in µm / Reihe 2:
12,5 3,2 0,8 0,2
entspricht:
Maße ohne Toleranzangabe nach DIN ISO 2768 mK
Datum Name
Bearb. 26.04.07 FrenzelMa1
Gepr. 27.04.07 FrenzelMa1
Norm 01.08.03 HIEMER
Artikel Nr.
Ursprung:
Oberfläche
Kz. 45315
Werkstoff
ID-Nr. 220230
Benennung
Circuit Diag. TruVidia sep arm 24V
Stromlaufplan TruVidia sep. Arm
Zeichnung Nr. 45315
Index
DIN A
Stckl.
Blatt von Blatt
Maßstab 1:1
Ersatz für
Ersetzt durch

22.7 Circuit Diagram – System with Camera




COLOR CODE for WIRES
1-1 WH = white weiß
1-2 BN = brown braun
2-1 GN = green grün
2-2 YE = yellow gelb
3-1 GY = grey grau
3-2 PK = pink rosa
4-1 BU = blue blau
4-2 RD = red rot
5-1 BK = black schwarz
5-2 PK = pink rosa
other possible addresses for remote control lamp 1: 11 – 13
other possible addresses for remote control lamp 2: 21 – 23
other possible addresses for remote control lamp 3: 31 – 33
for iLED3 an additionally adapter cable W56 is used
1412088 W56
J314 iLED3
4023444 (iLED5)
1393760 (iLED3)
REMOTE Lamp 3
CONTROL Adr. 30
REMOTE Lamp 2
CONTROL Adr. 20
REMOTE Lamp 1
CONTROL Adr. 10
X18 iLED5
X314 iLED3
PE, screw terminal
WH BN GN YE
Optional Remote Control
Cable 3x2x0,5 sqmm (iLED3) or
Cable 2x2x0,5 sqmm (iLED5), AWG20, shielded
J5 connects to X5 of corresponding filterboardin switch board.
see description of Optional Remote Control
4024902 for iLED5
1425416 for iLED3
RS485 Bus connection needed only if remote stations are supplied from switch board cabinet
Available Circuit Diagrams for Switch board combinations:
4025727
4025728
4025729
4025730
4025731
Switch board cabinet
to X203 on switch board
BUS_B BN
BUS_A WH
Circuit 1 -VDC BU +VDC BN
Circuit 2 -VDC BU +VDC BN
Circuit 3 -VDC BU +VDC BN
GN/YE
optional Cable 1x2x0,5 sqmm, AWG20, shielded
always needed
used only if two ore more lamps
used only if three lamps
Cable GN/YE 6 sqmm or AWG 10 min.
CUSTOMERS RESPOSIBILITY
Power cable required:
Distance Cross section
5m 2,5 sqmm, AWG14
10m 4,0 sqmm, AWG12
15m 6,0 sqmm, AWG10
30m 10,0 sqmm, AWG 8
50m 16,0 sqmm, AWG 6
Ground wire is minimum 6,0 sqmm, AWG10
Bus cable is always twisted pair 0,5 sqmm, AWG20
X204 6003269
Cable 3x2x0,5 sqmm (iLED3) or
Cable 2x2x0,5 sqmm (iLED5), AWG20, shielded
to GN/YE of X204
Camera signal from lamp
Camera
W16 connected to J4 on next filterboard
Signal cable 6003079 to video control unit (optionally via rail panel)
1380602
1408166
4025872
4024806
W16 Bus synchronisation cable 4024807 to next Filterboard of iLED
4024799
to motor controller
W60
to control board
to 1st lamp, Adr. 1 iLED
1408164
male connector front view
female connector front view
Slipring module
Rotary connector
Rotary Connector
1 = +VDC = RD
2 = GND = BK
3 = PE = GN/YE
4 = B = BN
5 = A = WH
PE = 2,5 sqmm, AWG 14, GN/YE
DC+ = 2,5 sqmm, AWG 14, RD
DC- = 2,5 sqmm, AWG 14, BK
A = 0,5 sqmm, AWG 22, WH twisted pair
B = 0,5 sqmm, AWG 22, BN twisted pair
Slip ring
Slip rings
to 3rd lamp, Adr. 3
Lamp 2, Adr. 2
PE, screw terminal
X18 + 1 - 2 A 3 B 4 4023444
Benennung
Circuit Diagr. 1–50m Camera
Stromlaufplan 1–50m Kamera
Zeichnung Nr. 44780 02
Artikel Nr. 4025895
Maßstab 1:1

22.8 Circuit Diagram – vidiaPORT



PE = 1,5 sqmm = GN/YE
+40V, GND = twistet pair AWG16, 1,5 sqmm + = RD, GND = BK
Y-DIF-A,B = twistet pair AWG24, 0,25 sqmm A = WH, B = BN
C-DIF-A,B = twistet pair AWG24, 0,25 sqmm A = GN, B = YE
all wires HAR, CUL
all wires in protecting tube CUL

COLOR CODE for WIRES

1-1	WH = white	weiß
1-2	BN = brown	braun
2-1	GN = green	grün
2-2	YE = yellow	gelb
3-1	GY = grey	grau
3-2	PK = pink	rosa
4-1	BU = blue	blau
4-2	RD = red	rot
5-1	BK = black	schwarz
5-2	MG = magenta	violett

Änderungen vorbehalten
(We reserve the right to make changes)

nicht vermaßte Kanten mit R ~0,2 gerundet
enthalten in Zeichnung Nr.:
MB 15964.04; 15965.03
Komm.–Nr. #23164

Index	Änderung	Datum	Name
05	Stecker an W15 eingefügt	10.04.07	FrenzelMa
04	PA Schiene entfernt	22.03.07	FrenzelMa
03	Neue Version angelegt durch FrenzelMa am 09.03.2007	09.03.07	FrenzelMa

TRUMPF KREUZER
Schutzvermerk nach DIN 34 beachten!

Oberfläche nach DIN ISO 1302
Ra in µm / Reihe 2:
12,5 3,2 0,8 0,1
entspricht:
Maße ohne Toleranzangabe nach DIN ISO 2768 mK

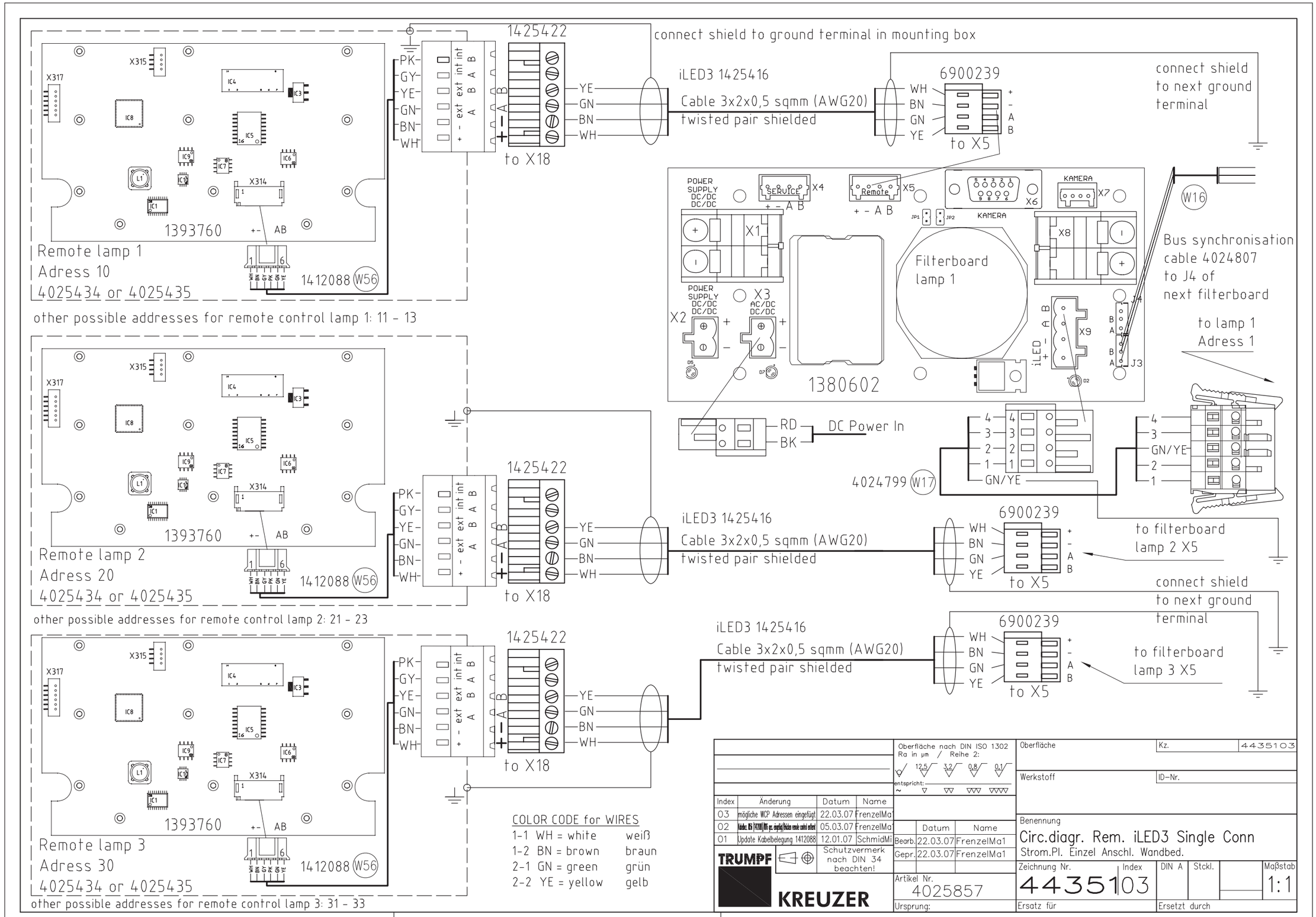
	Datum	Name
Bearb.	10.04.07	FrenzelMa1
Gepr.	10.04.07	FrenzelMa1
Norm	01.08.03	HIEMER

Artikel Nr. 4024054
Ursprung:

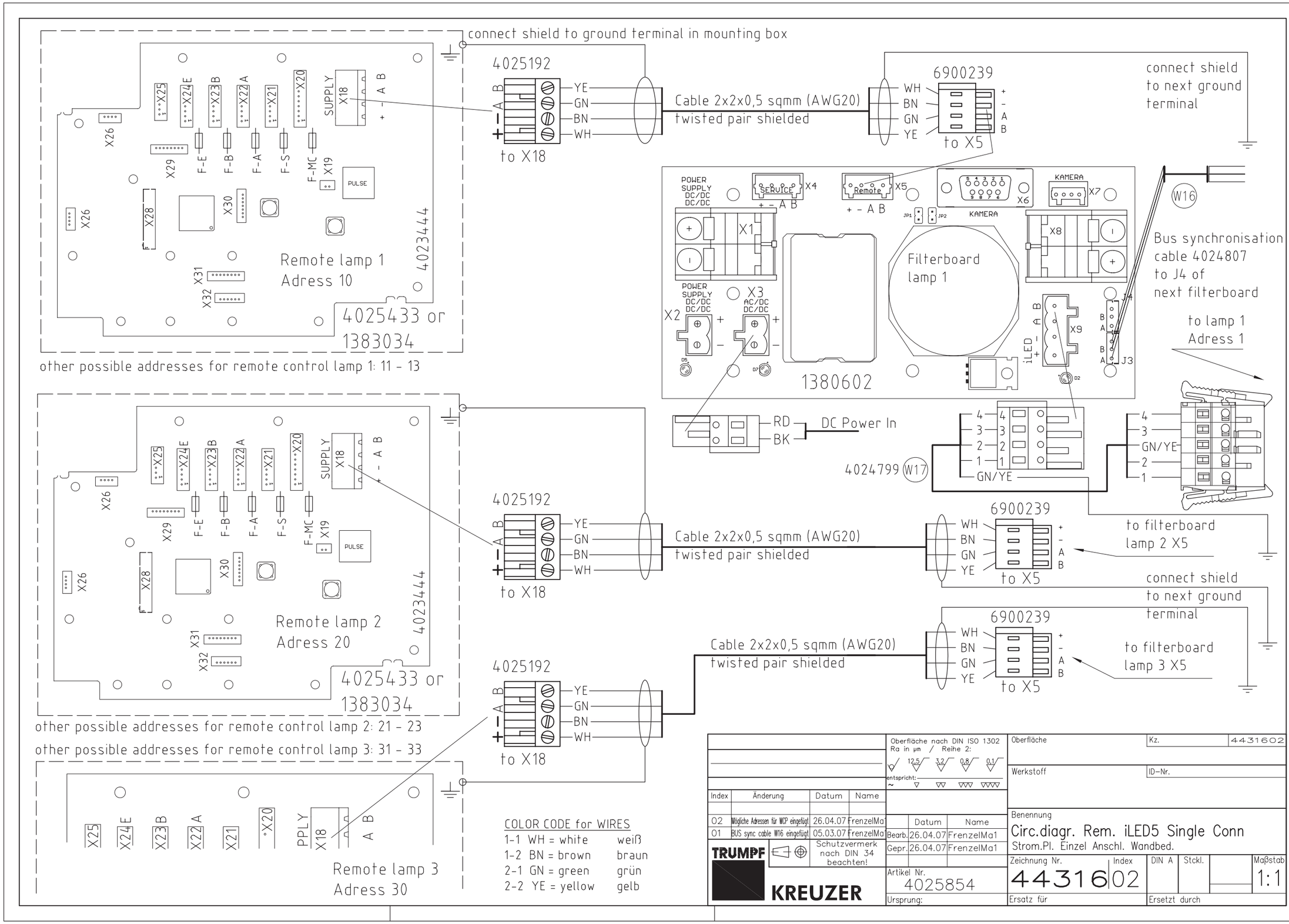
Oberfläche | Kz. el | 4052305
Werkstoff — | ID–Nr. 220230
Benennung
Circuit diagr. Camera complete
Stromlaufpl. Kamera komplett Powerl

Zeichnung Nr.	Index	DIN A	Stckl.	Blatt	Maßstab
40523	05	3	Ei	von Blatt	1:1

Ersatz für | Ersetzt durch


1425422
connect shield to ground terminal in mounting box
PK
GY
YE
GN
BN
WH
+ - ext ext int int
A B A B
to X18
iLED3 1425416
Cable 3x2x0,5 sqmm (AWG20)
twisted pair shielded
6900239
WH
BN
GN
YE
+
-
A
B
to X5
connect shield
to next ground
terminal
X315
X317
IC4
IC3
IC8
IC5
IC9
IC7
IC6
IC2
L1
IC1
X314
1393760
+- AB
Remote lamp 1
Adress 10
4025434 or 4025435
1412088 W56
other possible addresses for remote control lamp 1: 11 - 13
POWER SUPPLY DC/DC DC/DC
SERVICE
X4
+ - A B
Remote
X5
JP1
JP2
KAMERA
X6
X7
X1
X8
POWER SUPPLY DC/DC DC/DC
X3
AC/DC DC/DC
X2
D5
D7
1380602
Filterboard
lamp 1
iLED
X9
D2
J4
J3
W16
Bus synchronisation
cable 4024807
to J4 of
next filterboard
to lamp 1
Adress 1
RD
BK
DC Power In
4024799 W17
GN/YE
Remote lamp 2
Adress 20
4025434 or 4025435
other possible addresses for remote control lamp 2: 21 - 23
to filterboard
lamp 2 X5
connect shield
to next ground
terminal
Remote lamp 3
Adress 30
4025434 or 4025435
other possible addresses for remote control lamp 3: 31 - 33
to filterboard
lamp 3 X5
COLOR CODE for WIRES
1-1 WH = white weiß
1-2 BN = brown braun
2-1 GN = green grün
2-2 YE = yellow gelb
Oberfläche nach DIN ISO 1302
Ra in µm / Reihe 2:
12,5 3,2 0,8 0,1
entspricht:
Index Änderung Datum Name
03 mögliche WCP Adressen eingefügt 22.03.07 FrenzelMa
02 Kabelbelegung 1412088 05.03.07 FrenzelMa
01 Update Kabelbelegung 1412088 12.01.07 SchmidMi
Schutzvermerk nach DIN 34 beachten!
Bearb. 22.03.07 FrenzelMa1
Gepr. 22.03.07 FrenzelMa1
TRUMPF
KREUZER
Artikel Nr. 4025857
Ursprung:
Oberfläche
Kz. 4435103
Werkstoff
ID-Nr.
Benennung
Circ.diagr. Rem. iLED3 Single Conn
Strom.Pl. Einzel Anschl. Wandbed.
Zeichnung Nr. 4435103
Index
DIN A
Stckl.
Maßstab 1:1
Ersatz für
Ersetzt durch

22.9 Circuit Diagram – Wall-Mounted Control Panel



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Fax: ++49 / (0) 89 / 8 09 07-20
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www.trumpf-med.com

7200681 Installation Instructions iLED Lighting System US – 07/07